THE JOURNAL OF THE
TEXTILE INSTITUTE

ABSTRACTS

(The titles which are set in bold-face are intended as "scanning titles" for ease in classifying and filing. Where these are not substantially the authors' titles the exact titles are set in parentheses.)

1—FIBRES AND THEIR PRODUCTION

(A)—MINERAL

The Mineral Fibre of the Textile Industry. Myril C. Shaw. *Text. Rec.*, 1951, 68, January, p. 104. Information, presented in a lecture, on the properties and uses of asbestos fibres for textile purposes, is summarised. C—1A.

Properties of Textile Glass-Fibres. Paul-August Koch. *Melliand Textilber.*, 1950, 31, No. 7, pp. 455-461. In German. Some details are given of the properties of glass fibres, particularly in connection with the use of these fibres as textile materials. The properties discussed include: fineness (the irregularity of which can also be used to establish the method of manufacture); strength and elongation (dependence on fineness and degree of moisture); brittleness; resistance to fracture by torsion; hygroscopicity; specific gravity; and microscopical characteristics. Modern methods of testing are outlined, and data of properties of fibres obtained (1) by different manufacturing methods, and (2) from typical varieties of glass, are presented in tabulated and graphical form. Thirty-one references are given. C—1A.

(B)—ANIMAL

Silk: Manufacturing Problems. Anon. *Rayon Synth. Text.*, 1951, 32, No. 1, pp. 42-44. Some problems that are involved in the use of silk as a textile fibre are discussed. These include irregularity of the yarn, wash-fastness of dyed silk fabrics, and weighting. Experiments are being carried out on the solution and regeneration of silk fibre, by which means it is hoped to improve its behaviour in processing. Mention is made of the tax collected by the Japanese from silk producers and exporters in their own country in order to raise money for the International Silk Association. A brief reference is made to the use of silk in the hosiery trade. C—1B.

(C)—VEGETABLE

The World's Cotton Problems. Anon. *Text. Merc.*, 1951, 124, No. 3230, pp. 350, 353, 382, 383. A report is given of the proceedings of the 19th International Cotton Congress held recently in Cairo. Some of the addresses delivered are summarised. C—1C.

Cotton Varieties for Greece. Basil G. Christidis. *Cotton Res. Institute (Greece) Sci. Bull. No. 2*, 1949, February, 94 pages (In Greek, with English summary). The conclusions reached, as to which cotton varieties are the most suitable for Greece, are based on results obtained by the Hellenic Cotton Research Institute at Sindos from 1932-1948. The varieties which gave the best results were bred by selection from local seed mixtures (originally imported from America over the last 80 years). The only other variety which did well was the American Carolina Foster. C—1C.

The Coir Bristle and Mattress Fibre Industry in Ceylon. John Hudson. *Fibres*, 1950, 11, No. 10, pp. 369-378. This is a comprehensive article on coconut fibre, covering the development of the different layers of the fruit, the various products which it yields, methods of harvesting, removal of husks, the technique of separating the fibrous tissue from the interconnective tissue, and the processing, grading and marketing of bristle fibre and mattress fibre. C—1C.

Cultivation of "Ramie" Plant. B. C. Kundu. *Indian Farming*, 1950, 11, No. 4, pp. 169-171. The article discusses the cultivation, processing and marketing of ramie, and the qualities and applications of the finished fibres. The author explains how the development of the industry has been held up for lack of satisfactory methods of decortication and degumming. C—1C.

Cotton Production in Uganda in 1948. Anon. *Ann. Rep. Dep. Agric. Uganda*, 1950, pp. 17-21, 32, 33. Section III reviews the poor cotton crop of 1947-48 and expresses hopes of an abundant crop for 1948-49. Annual figures for acreage, yield, and price of cotton are given for 1940-1949, and prices, marketing arrangements, planting preparations, weather conditions, incidence of disease, seed distribution, and research work for the period under review are discussed. Tables are given showing production by province and zone for 1947-48, and monthly plantings for 1948-49. C—1C.

Effect of Nitrogen, Phosphorus and Potash on Certain Lint and Seed Properties of Cotton. W. L. Nelson. *Agron. J.*, 1949, 41, pp. 289-293 (through *Brit. Abstr.*, 1950, B III, August, p. 308). For a period of three years, observations were made on the effect of nitrogen, phosphorus and potassium on boll weight, fibre length, percentage of lint, fibre weight per inch, percentage of mature fibre, X-ray angle, Pressley index and oil content. The effect of fertiliser applications on the spinning properties of the cotton is discussed. C—1C.

Studies on the Development of the Boll, and the Formation of Oil in the Developing Seed in Some Varieties of Egyptian Cotton. M. Kamel. *Nature*, 1951, 167, No. 4244, p. 357. A brief report is given of an investigation, in four varieties of Egyptian cotton, of the rate of growth of the boll and the formation of oil in the seeds. C—1C.

The Cellulosan of Jute Fibre. P. B. Sarkar. *Nature*, 1951, 167, No. 4244, pp. 357-358. A 9·3 per cent. sodium hydroxide extract of the holocellulose obtained from jute by sodium chlorite treatment gave, on acidification and addition of one volume of alcohol, a material which contained xylose and a methoxy-uronic acid in the ratio of 6 moles to 1 mole. This fraction appeared to contain all the xylose and uronic acid present in the original jute C—1C.

(D)—Artificial

Acetate Producers Ask Own Generic Names. Anon. *Rayon Synth. Text.*, 1951, 32, No. 1, p. 41. American cellulose acetate rayon yarn producers have filed a petition with the Federal Trade Commission asking that the term "rayon" be used only for regenerated cellulose (*i.e.* viscose and cuprammonium yarns). It is desired to refer to cellulose acetate yarns, hitherto known as "acetate rayon", simply as "acetate". C—1D.

"Phrix" Spun-Dyed Rayon. ("Phrix spinngefärbte Fasern für die Textil-Industrie.") —. Nuding. *Textil-Praxis*, 1951, 6, No. 1, pp. 23-24. The use of spun-dyed rayon is finding increasing favour. Advantages include fastness at very low cost, even distribution of dyestuff, possibility of using pigments which cannot be otherwise applied, elimination of after-treatment normally associated with dyeing (for example, washing and drying), and improved spinning behaviour. C—1D.

Pot Spinning. Westinghouse Electrical Corporation (C. P. Walker). *Rayon Synth. Text.*, 1950, 31, No. 12, pp. 34-35, 46, 50. After dealing briefly with the history and principles of rayon spinning, the author refers to acid-resistant wire-strengthened plastic spinning pots, and describes in detail a pot-spinning motor. C—1D.

Synthetic Fibres: Their Development and Significance. ("Die Entwicklung und Bedeutung der synthetischen Fasern.") Herbert Rein. *Textil-Praxis*, 1951, 6, No. 1, pp. 7-10. The earlier development of man-made fibres, attributed in part to an unconscious realisation of the necessity for lesser dependence on imported fibrous materials into the European zone, was based largely on empirical methods, and it was not until after the first world war that a really scientific approach to fibre construction brought regenerated and synthetic fibres into the position of significance they now hold. The products of this later development are surveyed and compared on economic and utilitarian grounds. C—1D.

Textiles from Corn. Anon. *Chem. Prod.*, 1950, 13, No. 12, pp. 453-455. A brief account is given of the industrial procedure for the production of the new zein fibre "Vicara". The properties of this fibre are outlined. C—1D.

"Dynel"—the New Staple Fibre. Anon. *Text. Rec.*, 1951, 68, January, pp. 97-98. Some information is given on the physical, chemical, and processing properties of Dynel staple fibre. C—1D.

Effect of Simple Pre-Treatments of Pulp on the Filter-Clogging of Viscose. Kaoru Maeda, Keiichiro Kubozaki and Buntaro Suzuki. *Bull. Research Inst. Teikoku Jinzo Kenshi Kaisha Ltd*, 1950, 2, No. 1, *pp.* 3-8, (through *Chem. Abstr.*, 1951, 45, No. 3, p. 1341[c]). When a pulp was pre-treated with acid or alkali, the viscose prepared from it was slightly more filterable, but not appreciably more homogeneous. C—1D.

"Orlon" Acrylic Fibre: Chemistry and Properties. R. C. Houtz. *Text. Res. J.*, 1950, 20, No. 11, pp. 786-801. This survey covers solvents for Orlon; and solvent action, fractionation and molecular weight determination, chemical structure, colour formation in polyacrylonitrile; fibre properties of Orlon; and the dyeing of Orlon. A bibliography of 38 references (including 17 patents) is given. C—1D.

Synthetic Wool—Is it Possible? R. W. Moncrieff. *Text. Rec.*, 1951, 68, February, pp. 93-95. The possibilities of producing synthetic wool are considered and some of the problems involved are outlined. C—1D.

Effects of Glycerol and Ethylene Glycol on the Heat Treatment of Polyvinyl Alcohol Fibre. Shoki Lee and Kiyoshi Hitomi. *Chem. High Polymers* (Japan), 1945, 2, pp. 235-9 (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5107[e]). Experiments are described which lead to the conclusion that ethylene glycol or glycerol, used as softening agents for polyvinyl alcohol, facilitated the crystallisation, and made the crystallites more complete. Their effects were greater than water. C—1D.

The Fine Structure of Cellulose Fibres. II. Effect of Spinning Conditions. Isao Okamura and Shoichi Sakajiri. *Teijin Times*, 1949, 19, No. 4, pp. 51-3 (through *Chem. Abstr.*, 1950, 44, No. 11, *p.* 5095[d]). **Microstructure of Cellulose.** Shoichi Sakajiro. *Bull. Research Inst. Teikoku Jinzo Kenshi Kaisha Ltd.*, 1949, 1, No. 2, pp. 3-11 (through *Chem. Abstr.*, 1951, 45, No. 2, p. 855[b]). By Conrad's method (which uses Phillip's equation) viscose was hydrolysed with 4N. hydrochloric acid, and the loss in weight was recorded periodically to calculate the amount of the crystalline region and the velocity of hydrolysis. The result showed that with higher concentration of the sulphates in the spinning bath, higher temperature of the second bath, and greater tension of spinning, the hydrolysis velocity constant of the crystalline region was larger, whereas the length of the crystalline region became shorter, and the initial crystalline region was not affected. It follows that by changing the spinning conditions, the size of the crystalline particles in the regenerated cellulose can be made smaller, but the crystalline region will not be much affected. Rapid hydrolysis may mean a better distribution of the crystalline part and improve the physical quality of the yarn, but other factors seem necessary to make ideal yarn. C—1D.

Hot Drawing of Polyvinyl Alcohol Fibres. I. Shoki Lee and Kiyoshi Hitomi. *Chem. High Polymers* (Japan). 1945, 2, pp. 205-16 (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5107[d]), Polyvinyl alcohol fibres of various degrees of polymerisation (D.P.) were prepared by wet spinning in a bath containing sodium sulphate and zinc sulphate, the angle α between the spinning guides being varied. The fibres were heated under various loads, and shrinkage or elongation was estimated. The conclusion is drawn that it is effective to give the fibres a high degree of stretching during the spinning, to obtain high tenacity by hot drawing. The maximum tenacity thus obtained was 7·55 grams per denier for D.P.=1626, $\alpha=9°$, and degree of drawing=124 per cent. It was easy to obtain a tenacity of 4 grams per denier even with low values of D.P. or α. C—1D.

"Perlon": Manufacture and Properties. Hans Böhringer and Erhart Schuller. *Kunstseide u. Zellwolle*, 1950, 28, No. 4, 113-116. In German. The chemical reactions involved in the production of Perlon, a polyamide fibre, and the manufacturing processes, are described. The properties are tabulated, and comparisons made with other textile fibres, including cotton, rayon, and wool. C—1D.

Pilot-Plant Operation for the Manufacture of Synthetic Fibres from Polyvinyl Alcohol. Shoki Lee. *Chem. High Polymers* (Japan), 1945, 2, pp. 175-95 (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5106[b]). This is a detailed report on the Takatsuki Pilot Plant for the manufacture of polyvinyl alcohol. The fibre is called "Gosei Ichigo", that is, "Synthesis No. 1". The successive operations, starting with polyvinyl acetate, are described. A characteristic of this process is the method of combined heat-treatment and formalisation. The softening point is as high as 200° C. Even in boiling water the fibre shows little shrinkage. (See also *J. Textile Institute*, 1951, 42, A254.) C—1D.

Textiles. Parts I-IV. Isao Okamura. *Teijin Times*, 1949, 19, No. 4, pp.12-14 (English summary); No. 5, pp. 39-41; 1950, No. 1, p. iv (in English); No. 2, p. iii (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5096[b]). Discussing the homogeneity of viscose, the author points out that the homogeneous dispersion of cellulose molecules in viscose is difficult to attain, since during xanthation the osmotic velocity of the carbon bisulphide which causes the infiltration into the alkali cellulose structure is so low that only hydroxyl groups on or near the surface of chains of microfibres react, leaving the interior unaffected. In addition, pentosan in pulp impedes the dispersion. Part II discusses the possibility of scoring numerically the "feeling" of fabrics, by means of an apparatus to measure continuously their thickness and pressure. Part III, on treatment of viscose fibres with resins, states that some resins deposited in the interstices of cellulose molecules can be washed out almost completely without a marked decrease in the amount of that cross-bonding between adjacent molecules upon which the properties of the fabrics depend. In Part IV, on hydration water of cellulose, characteristics of cellulose hydrate, observed by Hermans *et al.* (*Kolloid Z.*, 1944, 109, pp. 86-90) are described. C—1D.

Use of Ultra-Sonic Vibrations in Textile Treatment. A. J. Hall. *Text. Merc.*, 1951, 124, No. 3233, pp. 493-494, 499. After giving some simple examples of the effect of sound waves on certain systems, the author describes two applications of ultra-sonic vibrations in the treatment of textiles, namely, in reducing the tendency of wool to felt and shrink, and in the acceleration of the coagulation of viscose rayon filaments as they emerge from the spinneret. C—1D.

Coloured Artificial Fibres. III. Properties of Yarn-Dyeing Solutions. Kazuo Miyasaka. *J. Soc. Textile Cellulose Ind.* (Japan), 1945, 1, pp. 684-8 (through *Chem. Abstr.*, 1951, 45, No. 4, p. 1771[b]). The effects of the addition of reducing agents to mixtures of viscose and various dyes have been studied. The mixtures containing anthracene dyes became turbid by the formation of many irregularly shaped coloured films. **VI. Relation between the Conditions of the Dyeing Bath and the Formation of Coloured Films.** *Ibid.*, 1947, 3, pp. 65-67. When sulphide dyes were used, addition of a concentrated dyeing bath generally produced coloured films. **VIII. Properties of the Film.** *Ibid.*, pp. 133-134. The films produced in the anthracene-dye mixtures showed no definite regular shapes, appearing singly at times and at other times forming a fibril. C—1D.

The Manufacture of Artificial Fibre, Especially Casein Wool. G. Genin. *Lait*, 1949, 29, pp. 430-5 (through *Chem. Abstr.*, 1951, 45, No. 4, p. 1771[b]). This article is a review which gives manufacturing procedure and properties of the fibres. C—1D.

The Structure of Viscose Rayon. Edgar Ribi. *Arkiv f. Kemi*, 1950, 2, No. 40, pp. 551-566. In German. Electron microscopy of viscose rayon subjected to the action of ultrasonic waves of moderate intensity, shows it to have a fibrillar structure. There is a high degree of uniformity in the thickness of the fibrils, which appear to be identical with those in natural fibre. X-ray and electron examination of viscose rayon hydrolysed by sulphuric acid confirms earlier evidence that the amorphous regions are the most readily attacked portions of the fibre. Though the lengths of the crystallites, as determined by microscopic, viscometric and osmometric methods, are in close agreement, no pronouncement on the absolute length of the crystallites can yet be made. The amorphous-mesomorphous-crystalline structures of regenerated cellulose and cellulose appear to be essentially similar, though the fibrillar length is smaller and the amorphous regions are larger in the regenerated material. X-ray analysis shows that considerable recrystallisation takes place in viscose rayon on treatment with acid. There are forty-one references. C—1D.

PATENTS

Ground-nut Protein Filaments: Strengthening. (1) David Traill and Imperial Chemical Industries Ltd. B.P.639,342: Appl. 22/12/1947; Filing 20/12/1948; Publ. 28/6/19950. (2) G. K. Simpson, John Brooks and Imperial Chemical Industries Ltd. B.P.639,363: Appl. 26/4/1948; Filing 25/4/1949; Publ. 28/6/1950. Artificial insolubilised peanut protein filaments are strengthened by treatment under pressure with a solution of a mercuric salt (*e.g.* the nitrate or acetate). (2) Uranyl salts are used. C.

Rayon Tow Cutting Machine. Union des Fabriques Belges de Textiles Artificiels "Fabelta", Soc. anon. B.P.639,466: Appl. and filing 28/10/1946; Publ. 28/6/1950; Belgian appl. 26/10/1945. A machine for cutting bundles of continuous filaments into uniform lengths comprises a rotary knife with helical cutting edge, the radius of the helix increasing from one end of the knife to the other, and a pair of slotted members that form a device for continuously feeding the filaments to the knife and gripping them while being cut. The feed member comprises two cylinders, one inside the other and tangential to it at the cutting point. The cylinders have helical slots that coincide at the cutting point so that the knife can pass through them. The cutting point is displaced in the axial direction of the knife at the speed of travel of the bundle. A travelling device is fitted for automatically sharpening the cutting edge. C.

Artificial Filament Dry Spinning Machine. American Viscose Corporation. B.P.639,723: Appl. and filing 1/5/1947; Publ. 5/7/1950; U.S.A. appl. 4/6/1946. The invention relates to the supply of the gaseous evaporative medium to a battery of dry-spinning cells or of gaseous cooling medium for melt spinning cells. The medium is passed in large excess through a main supply duct, then into a contiguous (*e.g.* concentric) return duct from which it is drawn off to the cells at spaced points. The two streams are held in heat-interchange relationship. C.

Viscose Spinning Machine. Courtaulds Ltd., Richard Clarke and Charles Pickering. B.P.639,908: Appl. 4/2/1948; Filing 3/2/1949; Publ. 5/7/1950. The invention relates to means whereby an operator can gain access to the spinning boxes of a viscose machine with less risk of exposure to noxious fumes. Each window of the machine is provided with a counterweight and is freely supported by its top edge on sliding hinges constructed so that, as the window is raised or lowered, the hinges slide across their point of support and thus transfer the centre of gravity of the window and its counterweight. The sliding hinges are mounted on a common shaft that can be rotated by a hydraulic ram and link so that the windows can also be raised or closed as a group irrespective of any individual movement they may have had. C.

Viscose Coagulating Emulsion. Courtaulds Ltd. and John Wharton. B.P. 640,105: Appl. 9/2/1948; Filing 8/2/1949; Publ. 12/7/1950. To prevent the formation of hard deposits on thread guides, godets, or thread-advancing reels, in the extrusion and coagulating of viscose, the mineral oil, non-drying fatty oil, or liquid wax contained in the processing liquid (sulphuric acid and salts) is emulsified with a long-chain polyglycol ether such as the product of the interaction of lauryl alcohol and ethylene oxide. C.

Viscose Continuous-Filament Slub Yarn Production Apparatus. Courtaulds Ltd., Edward Duncombe, K. A. Hartley and C. D. E. Jones. B.P.640,123: Appl. 30/4/1948; Filing 29/4/1949; Publ. 12/7/1950. Apparatus for producing viscose yarn with slubs comprises a main-line spinning pump driven at constant speed, and an auxiliary pump arranged so that the suction side of each pump is connected to the feed line for the viscose and the discharge side to the jet. The driving clutch of the auxiliary pump receives intermittent electric impulses. C.

Spirally-Grooved Plastic Monofils: Production. C. E. Every (for Hugo Wurzburger). B.P.640,386: Appl. and filing 12/8/1947; Publ. 19/7/1950. The invention relates to monofils of an organic plastic which are grooved spirally so that they are flexible and resemble twisted cords or ropes. C.

Wood or Straw Pulp: Purification. S. C. Bate (British Celanese Ltd.). B.P. 640,490: Appl. 10/3/1948; Filing 10/3/1949; Publ. 19/7/1950. Wood or straw pulp is purified for conversion into rayon by treatment with 15-22 w/v per cent. of caustic soda at 40-60° C. The liquor is removed (and may be revivified) and the pulp is washed with hot water. C.

Wood and Straw Pulp: Purification by "Alkali Freeze". J. E. Jones and R. R. Stott (British Celanese Ltd.). B.P.640,543: Appl. 14/1/1948; Filing 12/1/1949; Publ. 19/7/1950. The pentosan content of pulp (and of cotton linters) for rayon manufacture is reduced by impregnating the material with 2-5 per cent. caustic soda, lowering the temperature to about −4° C. for about 1-5 hours, melting the ice and pressing out the alkali, and then scouring the pulp. C.

Crimped Nylon Filaments: Production. Imperial Chemical Industries Ltd. B.P.640,582: Appl. and filing 3/12/1947: Publ. 26/7/1950; U.S.A. appl. 3/12/1946. Nylon filaments with a wool-like crimp are obtained by heating insolubilised, orientated nylon filaments to a temperature about 10-50° C. below their softening point (that is, to at least 150° C.) until they have shrunk by at least 20 per cent. (preferably, at least 50 per cent.) of their original length. C.

Viscose Spinning Machine. Courtaulds Ltd., J. H. Givens, A. G. Williams and Herbert Whitehead. B.P.640,750: Appl. 30/4/1948; Filing 29/4/1949; Publ. 26/7/1950. In a machine for spinning viscose filaments, two series of godets are arranged *en echelon* in horizontal planes so that all the threads travel the same distance between the godets and receive the same treatment in the troughs, whilst each thread is accessible to the operator throughout the treatment. C.

Carboxymethylcellulose Yarn: Production. Comptoir des Textiles Artificiels. B.P.640,972: Appl. and filing 8/3/1948; Publ. 2/8/1950; French appl. 4/4/1947. An alkali solution of carboxymethylcellulose is extruded into an acid bath, the regenerated filament is rendered insoluble by treatment with an Al or Be salt, and the product is washed, treated with a solution of a surface-active agent to prevent "sticking", and dried. The last solution may contain dispersed oil, fat or wax. C.

Pulp for Viscose: Production. Rayonier Inc. (assignees of R. L. Mitchell). B.P.641,242: Appl. and filing 15/5/1947; Publ. 9/8/1950; U.S.A. appl. 23/7/1946. A refined pulp of normal viscosity in cuprammonium solution, that yields a superior viscose after a shortened period of ageing, is obtained by the addition of 1-100 (preferably 4-20) parts per million of manganese in the form of a soluble salt, before conversion into alkali-cellulose. C.

Staple Fibre Cutter. American Viscose Corporation. B.P.641,262; Appl. and filing 3/9/1947; Publ. 9/8/1950; U.S.A. appl. 7/9/1946. This device for cutting a bundle of continuous filaments into staple fibre comprises a rotatable disc having an axial entrance for the bundle, surrounded by an entrance for a stream of conveying fluid (for example, steam), a radial exit through the periphery, and a cutting member, adjacent to the rim, which severs the bundle as it is brought round by the rotating disc. C.

Fibre-Forming Polyesters: Production. Courtaulds Ltd., Frank Reeder and E. R. Wallsgrove. B.P.641,320: Appl. 12/5/1948; Filing 11/5/1949; Publ. 9/8/1950. The claim is for the production of a series of polyesters that can be cold-drawn into fibres, by the heat-condensation of esters of the type $A{\cdot}O{\cdot}(CH_2)_m{\cdot}O{\cdot}C_6H_4{\cdot}(CH_2)_n{\cdot}CO_2R$, where A is H or an acyl group, R is H or an alkyl group, m is 2, 3 or 4, n is 1, 2, 3 or 4, and the substituents are in *para*-positions. In the examples, the parent substances are *p*-(β-hydroxyethoxy)-phenylacetic and β-(*p*-hydroxyphenyl)-propionic acids. C.

Method and Apparatus for Wet Spinning of Artificial Filaments. Ingham S. Roberts, assignor to American Viscose Corporation. U.S. Patent 2,536,092 dated Jan. 2, 1951. C.

Method for Spinning Artificial Filaments. James W. Coleman, James W. Hall, Howard D. Nerion, Sanford A. Moss, Jr., and John Watson Pedlow, assignors to American Viscose Corporation. U.S. Patent 2,536,093 dated Jan. 2, 1951. C.

Process for Spinning Artificial Fibres. Henry J. McDermott, and John Watson Pedlow, assignors to American Viscose Corporation. U.S. Patent 2,536,094 dated Jan. 2, 1951. C.

High Elongation [Cellulose Acetate] Yarn. Albert J. Mehler, Jr. assignor to E. I. du Pont de Nemours & Co., U.S.A. U.S. Patent 2,537,312 dated 9/1/1951. C.

Production of Filaments, Threads, and the Like by the Wet Spinning Process. Harold Barratt and Leslie Rose, assignors to Courtaulds Ltd., England. U.S. Patent 2,539,176 date Jan. 23, 1951. C.

Thread Guide Driving Arrangement for Artificial Silk Spinning Machines. Paul Nikles, assignors to Ing. A Maurer S.A., Switzerland. U.S. Patent 2,539,267. C.

Method of Producing Viscose. Maurice P. Kulp, and Charles D. Vandenburgh, Assignors to American Viscose Corporation. U.S. Patent 2,539,437 dated Jan. 30, 1951. C.

Process for the Intensive Aftertreatment of Synthetic Threads [in Wet Spinning]. Floris Adriaan Jan van Hall, and Daniel Rogla Barcelo, assignors to American Enka Corporation. U.S. aPtent 2,539,980 dated Jan. 30, 1951. C.

Cotton Picker [for Mechanical Harvesters]. Hugh A. Gamble. U.S. Patent 2,540,046 dated Jan. 30, 1951. C.

Draw Roll Mechanism for Hot Stretching of Artificial Filaments. Robert J. Birkenhauer, assignor to E. I. du Pont de Nemours & Co., U.S.A. U.S. Patent 2,541,149 dated 13/2/1951. C.

[Crimping of] Staple Fiber. Norman S. Welton, assignor to American Viscose Corpn, U.S.A. U.S. Patent 2,541,181 dated 13/2/1951. C.

Production of Textile Materials [as Tows of Filaments]. William Ivan Taylor, assignor to Celanese Corporation of America, U.S.A. U.S. Patent 2,541,305 dated 13/2/1951. C.

Production of Artificial Protein Fibers, Threads, Filaments, and the Like. Robert L. Wormell, assignor to Courtaulds Ltd., England. U.S. Patents 2,541,803/4 dated 13/2/1951. C.

Artificial Filament Spinning Machine. Richard W. Stanley and William B. Lowe, assignors to American Viscose Corpn, U.S.A. U.S. Patent 2,542,098 dated 20/2/1951. C.

Production of Artificial Materials [Filaments and Yarns]. William Ivan Taylor, assignor to Celanese Corporation of America, U.S.A. U.S. Patent 2,542,166 dated 20/2/1951. C.

Manufacture of Filaments, Films or the Like of Artificial Materials. Tom F. Barrington, assignor to Slack & Parr Ltd., England. U.S. Patent 2,542,301 dated 20/2/1951. C.

Production of Viscose. Donald Entwistle and William Reginald Weigham, assignors to Courtaulds Ltd., England. U.S. Patent 2,542,492 dated 20/2/1951. C.

Method for Making Crinkled Fibers. Nelson W. Abernethy, assignor to the Dow Chemical Co., U.S.A. U.S. Patent 2,542,973 dated 27/2/1951. C.

Method for Making Crinkled Fibers. Le Roy V. Jones, assignor to the Dow Chemical Co., U.S.A. U.S. Patent 2,543,027 dated 27/2/1951. C.

Spinning Funnel [for Rayon Production]. Cortland Hatfield, assignor to Beaurict Mills Inc., U.S.A. U.S. Patent 2,544,018 dated 6/3/1951. C.

[Acrylonitrile Polymer] Synthetic Fiber Preparation. Carroll A. Hochwalt, assignor to Monsanto Chemical Co., U.S.A. U.S. Patent 2,544,385 dated 6/3/1951. C.

Comb Type Cotton Harvester. Herman E. Altgelt, assignor to the Oliver Corpn, U.S.A. U.S. Patent 2,544,411 dated 6/3/1951. C.

2—CONVERSION OF FIBRES INTO FINISHED YARNS

(A)—Preparatory Processes

Fibre Control in Spun Yarns. Anon. *Text. Whly*, 1951, 47, No. 1196, pp. 436, 438, 440. Some factors that affect fibre control during sliver making and drafting, such as humidity, static electricity, "skidding" of the top roller, and roller covering, are briefly considered. Three graphs are given showing the regularity of draw frame sliver and of the subsequent rovings from the slubber and intermediate frames. It is suggested that the conventional drafting and fibre control methods may not be the best for all fibres, and in particular, that the best conditions for cotton are not necessarily best for rayon staple. C—2A.

Carding and Spinning. ("Here's How Alabama Men Tackle These Mill Problems.") Alabama Textile Operating Executives. *Text. World*, 1951, 101, No. 1, pp. 104-105, 226. Some questions and answers on carding and spinning

practices are presented. The topics covered include pneumatic picker-rack control, card and draw frame maintenance, card-room ceiling cleaners, reworkable card-room waste, and underframe cleaners for spinning. C—2A.

Drawing Frame Rolls: Selection. Arlington Boylston. *Rayon Synth. Text.*, 1951, **32**, No. 1, pp. 31-33, 70. Some factors to be considered in the choice of draw frame rollers (such as metallic *versus* cushioned rollers, and roller size) are discussed. Mention is made of a new drafting system for cotton, worsted, rayon and synthetic fibres that has recently been introduced into American mills, and which is based on the principle of three top rollers acting in conjunction with four lines of bottom rollers. C—2A.

Processing of Rayon Staple on Cotton Cards. ("Beitrag zur rationellen Zellwollverarbeitung auf Baumwollkarden.") Anton Beck. *Textil-Praxis*, 1951, **6**, No. 1, pp. 19-21. Correct procedures are indicated for obtaining optimum results on carding rayon staple. In addition to adjustments of the machine, and reducing waste to a minimum, causes of faulty laps are discussed. C—2A.

The Retting of Flax. Anon. *Alphomega*, 1950, **5**, No. 2, pp. 32-35. An illustrated description is given of the various methods that are used for the retting of flax—dew retting, pond retting, tank retting, and chemical retting. C—2A.

The Mechanical Hackling of Flax Fibre. Anon. *Alphomega*, 1950, **5**, No. 2, pp. 38-42. Tech nical information is given on the grouping of hackle pins. C—2A.

Alabama Mill Carding Practices. Alabama Textile Operating Executives. *Text. Industr.*, 1950, **114**, No. 12, pp. 109, 111, 113. This is a report of a discussion on the carding practices employed in mills in Alabama, U.S.A. C—2A.

Automatic Cleaning. W. A. Thomason. *Text. World*, 1951, **101**, No. 2, pp. 126-129. A "camera tour" is made of an American spinning mill in which automatic overhead and underframe cleaners have been installed. C—2A.

Precision Picker Knock-off. George A. Pettit. *Text. World*, 1951, **101**, No. 2, p. 153. The new picker knock-off mechanism described, enables laps of any desired length (from 4 to 40 yards) to be produced. C—2A.

Cotton Manufacturing. *Papers Second Canad. Text. Seminar*, 1950, pp. 94-115. The papers presented in this section of the second Canadian Textile Seminar deal with (1) the adoption of the micron (10^{-4} cm.) as the unit for the expression of the diameter of yarn or fibre, (2) fibre characteristics in relation to production and quality of finished yarns and fabrics, (3) cotton warp preparation, and (4) the theory of carding. C—2A.

New Drafting Pressure-Roller. Kurt Quaas. *Textil-Praxis*, 1951, **6**, No. 2, pp. 98-99. In German. A new type of pressure roller is described which, it is claimed, runs evenly, is not affected by fly, and always remains parallel to the axes of the fixed rollers. The roller is mounted in sintered metal bearings which assure constant lubrication. Owing to the design, fly cannot remain near the bearing, and furthermore it is not moistened by lubricant, since the bearing is completely enclosed. The mounting of the roller on the axle, and other features, are explained diagrammatically. C—2A.

Raw Cotton Preparation. Anon. *Elect. Rev.*, 1951, **148**, No. 3827, pp. 651-655. An illustrated account is given of the raw cotton processing system employed in a modern Scottish mill. Pneumatic handling and individual electric drives for the machines are features emphasised in this article. C—2A.

The Dörstling Special Cutting Machine for Textile Fibres. Walther Wegener. *Melliand Textilber.*, 1950, **31**, No. 7, pp. 464-466. In German. The structure of the Dörstling machine for cutting up fibrous material into any given length is described in great detail. Lengths of up to 150 mm. are obtainable, but it is pointed out that the regularity of staple length depends on the degree to which the fibres have been rendered parallel in the web prior to cutting. C—2A.

Roving- and Yarn-Twist: Advantages and Application of the Laetsch Formulæ. Gustav Porsche. *Melliand Textilber.*, 1950, **31**, No. 7, pp. 462-463. In German. New general formulæ have been derived for determining the amount of twist to be imparted in (1) roving or (2) yarn:

$$(1)\ T = a_1 Ne^{0.5},$$

$$\text{and } (2)\ T = a_1 . Ne^{0.7},$$

where T is the number of twists per inch; Ne, the English cotton number (count); and a_1, a coefficient of twist, the value of which is constant for all counts of a given type of cotton. The application of these formulæ is described and their practical worth discussed. A helpful feature is the inclusion of two tables, one giving roving counts (ranging between 0·4 and 20·0) raised to the power 0·65, and the other giving yarn counts (ranging between 1 and 150) raised to the power 0·7. C—2A.

(B)—Spinning and Doubling

Carding and Spinning Calculations. W. A. Thomason. *Text. World*, 1951, 101, No. 1, pp. 131-135, 137-145 (10 pages). The writer points out that the indiscriminate use of given formulæ for spinning calculations can lead to erroneous results unless the basic principles underlying these formulæ are understood. With this point in view, the principles needed to make the major carding and spinning calculations of draft, twist, and production, are explained. C—2B.

German Modifications of Casablancas High-draft Systems. ("Neues Zweiriemchen-Streckwerk für Baumwolle und Zellwolle.") Kurt Quaas. *Textil-Praxis*, 1951, 6, No. 1, pp. 25-27. Various German modifications of the Casablancas high-draft system are described. Some of the new features include a longer bottom band tensioned by means of a roller, replacement of tensors by tension rollers, modification of the upper pressure system, and so on. C—2B.

Practical Spinning of Matt-Rayon Staple. ("Beitrag aus der Praxis zur Verspinnung von Mattzellwolle.") Hans Ebert. *Textil-Praxis*, 1951, 6, No. 1, pp. 24-25. Practical details are given for processing 40/15 and 40/12 matt rayon staple in the spinning department. C—2B.

Spinning Nylon Staple. Anon. *Rayon Synth. Text.*, 1950, 31, No. 12, pp. 71-73. The article summarises currently-available information on the processing of nylon staple on the cotton and American worsted systems. C—2B.

The Backing-off Chain on the Mule. Anon. *Text. Merc.*, 1951, 124, No. 3232, pp. 449, 451-452. The working of the backing-off chain is explained in detail. C—2B.

Cop-Retainer and Tubes for Mule-Spinning Frames—German Specifications. German Standards Committee. *Textil-Praxis*, 1950, 5, No. 7, pp. 401-402. In German. Standard dimensions are given for a mule cop spring-steel retainer, and for paper tubes and wooden bobbins to fit mule spindles. C—2B.

Cotton Spinning Developments. A. Sidebottom. *Text. Whly*, 1951, 47, No. 1201, pp. 780, 782, 784, 786, 788. A report is given of a lecture on "developments which can lead to increased productivity in cotton spinning". C—2B.

Dyed Rayon Staple: Spinning Characteristics. August Friedrich. *Melliand Textilber.*, 1951, 32, No. 2, pp. 103-104. In German. Dyed rayon staple has processing characteristics different from those of the undyed fibre. Conditions for the production of 24-30s yarn are recommended. C—2B.

Endless Extensible Mule-Spindle Bands. Silentbloc Ltd. *Text. Mfr*, 1951, 77, February, p. 68. Information is given on a new endless elastic spindle-band for mule frames. It consists of a rubber core, covered with cotton braiding impregnated with synthetic rubber. C—2B.

Importance of Twist in Yarns. Anon. *Text. Whly*, 1951, 47, No. 1202, pp. 848, 850, 852. Some aspects of the insertion of twist in yarns are discussed, including: method of inserting twist; amount, types, object, and cost of twist; and variation in twist. C—2B.

Rayon Staple Adhesiveness: Its Influence on Processing. G. Thieme. *Melliand Textilber.*, 1951, 32, No. 2, p. 103. In German. The adhesiveness of rayon staple is dependent on the manufacturing process, finishes, surface characteristics, crimpiness, and so on. Conditions for obtaining a good quality mixture yarn with other fibres are indicated. C—2B.

Ring Doubling-Frame: Construction and Operation. Josef Schneider. *Melliand Textilber.*, 1951, 6, No. 2, pp. 105-108. In German. Details are given of modern doubling-frame construction. One of the major problems tackled in recent years is the elimination of too great a reduction in size of the balloon during the winding of the upper portion of the bobbin. Measures for controlling balloon size are described in detail. C—2B.

Worsted Ring-Spinning Frame with Lifting Drafting-Section. R. Morrison. *Textil-Praxis*, 1950, 5, No. 6, pp. 344-345. In German. In order to eliminate the periodicity of yarn-strength characteristics as produced by the alteration of the relative position of the spindle and drafting mechanism on the ring-spinning frame, a machine has been designed on which the drafting section moves so as to maintain a balloon of constant size. Other details of this McGlynn-Hays ring-spinning frame are given. C—2B.

Yarn-Doubling: Estimation of Processing-Time. H. Mutschler. *Textil-Praxis*, 1950, 5, No. 5, 279-281; No. 6, 341-343. In German. Expressions and nomograms are derived for determining production times in a doubling mill. C—2B.

Plied Yarns—Core Spinning. A. Johnson. *Text. World*, 1951, 101, No. 3, pp. 128-129. The production of plied yarns by the "Belgian doubling" or core spinning process is described. Some test results are given for fabrics woven from yarn consisting of a nylon core and a wool covering. C—2B.

(C)—Subsequent Processes

Automatic Textile Machinery K. D. G. Instruments Ltd. *Fibres*, 1950, 11, No. 12, p. 450. A range of Skein-Winding Machines has been developed, together with a Printing and Tube-Forming Machine which will make reels of tickets for use with the Skein-Winding Machines. A photograph of an automatic pull-out Skein-Winding Machine is included. C—2C.

A High Speed Ring Twister. J. & T. Boyd Ltd. *Fibres*, 1950, 11, No. 12, p. 448. This frame incorporates a new method of stop-motion twister spindle drive. A vertical shaft between primary and secondary tapes carries a live and a dead wharve; when the stop motion causes the shaft to rise, the secondary tape is transferred to the dead wharve. A diagram of this feature is included. C—2C.

Splicing Plied Yarns. Horace L. Pratt. *Text. Industr.*, 1950, 114, No. 12, pp. 87-89. Two machines for splicing heavy plied yarns are described. The sequence of operations is illustrated by means of photographs in both cases. C—2C.

The Universal Twister. R. S. Audley. *Fibres*, 1950, 11, No. 12, pp. 440-441 and 442. Features of different types of Universal twisting frames are discussed, including the creel package, mechanical details which need special attention, and the operation of the band-drive and tape-drive types of twisting frame. A comparison is made between the "Magnum" Universal Twister and ordinary Universal twisting. C—2C.

New Reeling-Machine Construction. Ernst Neisser. *Textil-Praxis*, 1950, 5, No. 7, pp. 424-425. In German. The paper demonstrates the tremendous proportion of time taken up by manual operations on the old type of reeling machine. A new type of machine with two reeling heads is described. One head is in motion whilst the other is stationary so that, provided sufficient labour is available, the process is made virtually continuous. C—2C.

Continuous Treating Unit Sets Yarns Permanently. Fred H. Muller. *Text. World*, 1951, 101, No. 3, pp. 132-133, 236, 238. An illustrated description is given of a machine in which a yarn sheet (of 50 ends) is passed through an adhesive impregnating bath, stretched, dried, and wound on to a section beam or 50 yarn packages. The process was originally developed for cotton, but it is now being used for rayon and synthetic yarns. C—2C.

Patents

Ring Frame with Rising and Falling Drafting Head. J. H. Hays (for C. H. Harrigan, W. W. Wetzold, G. F. Norcross and J. C. Van Riper). B.P. 639,201: Appl. and filing 10/3/1947; Publ. 21/6/1950. The invention is based on the argument that there is an optimum distance, which should be maintained as long as practicable, between the drafting head and the ring rail. To secure this it is proposed to raise and lower the drafting head with the bobbin building mechanism during a predetermined portion of the building of the bobbin. The various parts of the frame are described with the help of eleven sheets of machine drawings and are claimed to secure the following objects: (1) To provide means for the upward movement of the drafting head, operated by and in

synchronism with the ring rail traversing mechanism. (2) To secure constant and positive drive of the drafting rollers throughout the entire lift of the drafting head. (3) To raise the thread guide and balloon arrester in synchronism with the ring rail. (4) To provide a drafting head with more than five roller shafts so as to secure better fibre control and the possibility of high-drafting without aprons and the like. (5) To provide an improved under-clearer for the drafting rollers. (6) To prevent entanglement of a broken end with an adjacent end. (7) To reverse the direction of rotation of the spindles without reversing the drafting head or changing gears. C.

Double Condenser High Draft Mechanism. J. V. Weinberger. B.P.639,257: Appl. and filing 6/1/1947; Publ. 28/6/1950. The invention relates to the provision of sliver condensers in a high-draft system in order to rectify the tendency of selvedge fibres in a flattened sliver to draft differently from fibres in the main bulk and to "lick" round the rollers. The description shows a 3-line system with a porcelain guide of circular form after the first line and a slotted guide after the second line. The sliver therefore passes between the carrier rollers (the second line) with circular section and is fed to the third-line rollers in substantially elliptical form with the major axis vertical. C.

Ribbon Lap Machine. Knowles Ltd. and Maurice Goddard. B.P.639,276: Appl. 10/11/1947; Filing 27/4/1948; Publ. 28/6/1950. The invention seeks to reduce the labour of putting laps into position on a ribbon lap machine. The creel is arranged at a lower level than usual (*e.g.* 9 ins. above the top of the draft rollers) and nearer to the front (*e.g.* 18½ ins. from the centre of the creel to the centre of the lap when in position). A chute directs the lap from the creel into the feeding position, a buffer being provided to halt the lap at the right point. C.

Sliver or Ribbon Lap Machine Bobbin Centreing Device. Knowles Ltd. and Maurice Goddard. B.P.639,355: Appl. 15/3/1948; Filing 12/3/1949; Publ. 28/6/1950. A lap bobbin for a sliver or ribbon lap machine is provided with separate flanges journalled upon spindles about which the bobbin can revolve, the spindles being moved in and out of the bobbin ends by right- and left-hand screw threads turned by a handle. The racks are suspended from the spindles by annular casings in which the spindle journal bearings are located and to which the racks are secured. The casings can move outwards to allow the spindles and flanges to separate from the full and raised bobbin. C.

Sliver Can: Manufacture. White, Child and Beney Ltd. and C. C. Q. Clarke. B.P.639,642: Appl. 14/4/1948; Filing 21/1/1949; Publ. 5/7/1950. The invention relates to a method of fabrication of a sliver can whereby the inverted pan-like bottom is welded to an L-shaped ring so that a channel is provided between them for the reception of the fibre-board or vulcanised wall of the can, and also the usual fibre-board kicking band. These are riveted in place. C.

Hard-twisted Yarn Production Device. England and Co. (Shelley) Ltd. B.P. 639,717: Appl. 24/2/1947; Filing 20/2/1948; Publ. 5/7/1950. Apparatus for producing hard-twisted yarn comprises a mounting for a horizontal bobbin rotating about a vertical axis, a constricted device through which the ends of yarn from the bobbin pass and receive a "first" twist, and a set of nip rollers and guides leading the twisted yarn to a flyer where a "second" twist is imparted. [The device appears to be intended for the production of curled wool yarns, the hard-twisted ply yarn being set by boiling and then "opened" or separated into singles.] C.

Thread-advancing and -winding Reel. Rudolf Hellbach. B.P.639,939: Appl. and filing 10/7/1947; Publ. 12/7/1950; U.S.A. appl. 19/7/1946 and 14/4/1947. The invention relates to a reel on which to treat artificial filaments with chemical solutions or gases. It comprises essentially a drum formed of fixed bars that interdigitate with movable bars and spring and cam devices that cause the latter bars to move longitudinally and radially (in sequence or simultaneously) when the drum is rotated. The reel may be tapered so that the thread is stretched as it is advanced from the smaller to the larger end. C.

High-speed Vertical Spindle. Knitting Machines Corporation. B.P.639,957: Appl. and filing 27/10/1947; Publ. 12/7/1950; U.S.A. appl. 6/11/1946. The invention relates to a vertical spindle assembly, for such purposes as yarn spinning, doubling, testing and braiding, that can be run at speeds of 20,000 r.p.m.

or more. The spindle proper is supported by upper and lower anti-friction bearings within a cylindrical housing that serves, at the bottom, as a reservoir for lubricant and is provided with means for supplying lubricant to the bearings continuously and in regulated amount, in the form of mist. C.

Carding Engine Calender Delivery Mechanism. Platt Brothers & Co. Ltd. and Frank Tweedale. B.P.640,250: Appl. 4/1/1947; Filing 18/12/1947; Publ. 19/7/1950. The invention relates to clamp-like or cam means for spring-loading the calender rollers without increasing the load on their bearings, so as to compress the sliver and secure a longer length in the cans. C.

Metal-Flanged Bobbin Polishing Machine. High Duty Alloys Ltd. and J. R. Standring. B.P.640,606: Appl. 3/5/1948; Filing 30/5/1949; Publ. 26/7/1950. A machine for securing a high polish on the metal flanges of bobbins comprises a frame carrying three or more polishing rollers that make contact with the edge of the flange at different slopes. The machine may be constructed as a hand tool resembling a pair of tongs, or the bobbin may be rotated by hand, foot, or hydraulic gearing. C.

High-speed Hand-fed Spinning Machine. W. H. Ham. B.P.640,726: Appl. and filing 6/8/1947; Publ. 26/7/1950; U.S.A. appl. 19/7/1946. The claim is for a power-driven machine for hand spinning in which the twisting unit is a "flyer" in the form of a hollow cone of light metal, mounted for rotation on a horizontal spindle. C.

Short-Staple Fibre: Wet Spinning. Mount Vernon-Woodberry Mills Inc. B.P. 640,909: Appl. and filing 3/10/1946; Publ. 2/8/1950. Water (which may contain a wetting agent) is applied to the roving (for example cotton) on a ring frame between the front drafting rollers and the spindle point. The bobbin front roller may be fluted, and wetted by a roller that dips in a trough of water. C.

Drafting-Roller Saddle-Weighting Device. Dobson & Barlow Ltd. and Robert Mayor. B.P.641,361: Appl. 21/10/1947; Filing 18/8/1948; Publ. 9/8/1950. The claim is for a saddle-weighting device made in an upper part to which the weight hook is attached, and a lower part resting on the middle roller and connected by a pivoted link to the upper part; this arrangement allows the top member to be lifted (for clearing the front roller) without interfering with the other rollers. C.

High-Draft Roller Aprons: Construction. Dayton Rubber Co. B.P.641,941: Appl. and filing 10/12/1946; Publ. 23/8/1950. Aprons for high-draft systems are formed of a layer of longitudinal cords embedded in a tough black rubber containing carbon black on the face that makes contact with the rollers, and a soft rubber free from carbon black on the face that makes contact with the fibre. Nylon is preferred for the cords and Perbunan for the rubber. C.

Spindle for Use in Textile Machines. Earl S. Wood, assignor to Whitin Machine Works, U.S.A. U.S. Patent 2,536,618 dated Jan. 2, 1951. C.

Apparatus for Cleaning Cotton. John A. Streun, assignor to Hardwick-Etter Co., U.S.A. U.S. Patent 2,536,781 dated Jan. 2, 1951. C.

Drafting Mechanism for Textile Fibres. Joseph Noguera, assignor to Casablancas High Draft Co. Ltd., England. U.S. Patent 2,536,884, dated Jan. 2, 1951. C.

Driving Mechanism for the Rubbing Motion of Tape Condensers of Carder Engines. Irvin Marsden, assignor to Platt Bros & Co. Ltd. England. U.S. Patent 2,539,028 dated Jan. 23, 1951. C.

Mechanism for Operating a Comb-Box on a Card. Thomas B. Hunt, Marvin W. Odom, and James W. Garret. U.S. Patent 2,539,081 dated Jan. 23, 1951. C.

Elastic Yarn. Boutwell H. Foster, assignor to U.S. Rubber Co., U.S.A. U.S. Patent 2,539,300 dated 9/1/1951. C.

Production of Cross-Wound Bobbins. Petrus Andries Beeftink, assignor to American Enka Corporation. U.S. Patent 2,539,942 dated Jan. 30, 1951. C.

Ring Twisting. Conrad Joseph Gonsalves, assignor to American Enka Corporation. U.S. Patent 2,539,950 dated Jan. 30, 1951. C.

Composite Yarn, Fabric made Therefrom, and Method of Making the Same. Cornelius A. Carney. U.S. Patents 2,541,499 and 2,541,500 dated 13/2/1951. C.

Doffing Mechanism for Spinning Machines. Kenneth W. Crossman and Jack Numerof, assignors to Edwin H. Fitler Co., U.S.A. U.S. Patent 2,541,503 dated 13/2/1951. C.

Twisting Spindle. Jean-Louis Pellat-Finet and Marcel Riffet, assignors to R.O.B.E.S.A., Switzerland. U.S. Patent 2,541,541 dated 13/2/1951. C.

Apparatus for Spinning and Twisting Textile Yarns. John K. Cochran, assignor to the Duplon Corporation, U.S.A. U.S. Patent 2,541,746 dated 13/2/1951. C.

Spindle for Use in Textile Machines. Earl S. Wood, assignor to Whitin Machine Works, U.S.A. U.S. Patent 2,541,802 dated 13/2/1951. C.

Spinning Frame Control. David R. Neely. U.S. Patent 2,541,885 dated 13/2/1951. C.

Method of Making Mixed Yarns. Robert Hêsne de Lacotte, assignor to Comptoir des Textiles Artificiels, France. U.S. Patent 2,542,314 dated 20/2/1951. C.

Yarn Conditioning Device. Charles F. Dulken, Arthur M. Stern, and Paul A. Reuter. U.S. Patent 2,543,098 dated 27/2/1951. C.

Roller Gearing for Drafting Mechanisms for Textile Fibers. Joseph Noguera, assignor to Casablancas High Draft Co. Ltd., England. U.S. Patent 2,544,468 dated 6/3/1951. C.

3—CONVERSION OF YARNS INTO FABRICS

(A)—Preparatory Processes

Developments in Yarn Winding Processes. H. Marsden. (1) *Text. Wkly*, 1951, 47, No. 1198, pp. 580, 582, 584; No. 1199, pp. 650, 652; No. 1200, pp. 708, 710, 712; (2) *Text. Merc.*, 1951, 124, No. 3229, pp. 328, 329, 331. (1) A lecture on development in yarn winding processes is reproduced in full. The advantages of the cone yarn package are summarised and a description is given of cone and other winding machines developed by the Universal Winding Company. (2) A summary of the lecture is presented. C—3A.

Glass Yarns: Warping, Weft Winding and Weaving. Harry E. Mahler. *Text. World*, 1951, 101, No. 1, pp. 110-111. A few hints are given on the warping, weft winding, and weaving of glass yarns. C—3A.

Anti-Static Agents for Nylon: Comparison. ("Here's How Nylon Anti-Static Agents Compare With Each Other.") L. B. Chandler. *Text. World*, 1951, 101, No. 1, pp. 116-117. The efficiencies of 17 (named) anti-static agents for nylon are compared. C—3A.

Processing Characteristics of "Perlon". ("Förderung der Präzision unter besonderer Berücksichtigung des Nefa-Perlon.") E. Pieper. *Textil-Praxis*, 1951, 6, No. 1, pp. 32-35. Precision in the spinning and weaving of textile fibres and yarns is essential, and particularly so in the case of rayon and synthetic fibres. Accuracy can be obtained only by closely studying the nature and properties of the material. In discussing the processing characteristics of "Perlon", various testing procedures and mechanical requirements are described. These include: generation of static on passing through thread-guides, determination of coefficient of friction; elasticity and elongation under tension (hysteresis effects compared with natural silk); the effect of tension during processes such as winding (Perlon, matt viscose and bright viscose are compared), with particular reference to the essentials of a good thread-braking system. C—3A.

Self-Cleaning Dead-Weight Tension. Muschamp Taylor Ltd. *Text. Wkly*, 1951, 47, No. 1196, p. 458; *Text. Merc.*, 1951, 124, No. 3228, pp. 275, 279. A description is given of a new type of self-cleaning, dead-weight tension device designed primarily for use in the processing of "dirty" yarn. C—3A.

Stop Loom-Stops in Warp Production. Eugene P. Schremp. *Text. World*, 1951, 101, No. 1, pp. 102-103. A few tips are given on how to prevent loom stoppages by careful preparation of warp and loom. C—3A.

A New German Pirn Winder. Anon. *Silk & Rayon Rec.*, 1951, 25, No. 2, p. 174. A brief illustrated description is given of the Schlafhorst "Autocopser" pirn winder. The machine is fully automatic and will wind at speeds up to 10,000 r.p.m. C—3A.

Spanish Textile Machinery: Automatic Pirn Winders. A. Barella. *Fibres*, 1950, 11, No. 10, pp. 379-380. The author describes three types of automatic pirn-winders which were on display at the Official International Model Fair at Barcelona. These machines are built with four parallel action spindles, on the German system, rather than having individual action spindles as in Swiss machines. Some non-automatic rapid-action winders are also briefly described. C—3A.

Dependence of Cheese Structure on Winding. G. Heller. *Textil-Praxis*, 1951, 6, No. 2, pp. 111-113. In German. The structure of cheeses according to the manner of winding is discussed. Winding systems considered include drum-driven bobbins, and precision open or close winding. C—3A.

Modern Weft-Winding Machines. W. B. Kaufmann. *Melliand Textilber.*, 1951, 32, No. 2, pp. 108-111. In German. After discussing the trends in modern weft-winding machine design, German, Swiss and Czechoslovak products are described, together with the type of work which can be carried out on them. The machines considered include spindle and spindle-less types, automatic weft-winders, and automatic tubular-cop winders. C—3A.

Modern Yarn Preparation. E. Brierley. *Text. Wkly*, 1951, 47, No. 1202, pp. 856, 858, 860; No. 1203, pp. 928-931. This lecture deals with modern methods for the preparation of warp and weft yarn for the weaving trade, and is mainly concerned with cotton. C—3A.

(B)—Sizing

Warping and Sizing of Rayon Yarns. ("Das schären [Zetteln] und Schlichten von Reyon-Ketten.") Hans Maier. *Textil-Praxis*, 1951, 6, No. 1, pp. 39-44. Various methods and machines for warping and sizing rayon yarns are described in some detail. C—3B.

Size Viscosity. Foster Williams. *Text. World*, 1951, 101, No. 1, pp. 126, 270, 272. Factors which affect the viscosity of size, the measurement of this viscosity, and the choice of a suitable size formula are briefly discussed. C—3B.

Yarn Preparation: Adapting American Technique. F. Lee. *Fibres*, 1950, 11, No. 12, pp. 436-437. The article reports an address to the Textile Institute's conference on yarn preparation, at Burnley. The speaker discussed the forms in which yarn arrives at the manufacturers, the control of the quality of the spun yarn, direct spinning, the possibility of closer liaison between spinners and manufacturers without vertical integration, and the urgent need for simple testing procedures, to make possible a system of purchase against specification. C—3B.

Georgia Mills Participate in Discussion of Slashing Techniques. Georgia Textile Operating Executives. *Text. Industr.*, 1950, 114, No. 12, pp. 103-106. A report is given of a discussion on sizing techniques employed in Georgia (U.S.A.) mills. C—3B.

A New Sizing Material. Monsanto Chemical Co. *Fibres*, 1950, 11, No. 10, p. 367. The article refers to British Patent 643,273, relating to a co-polymer of styrene and maleic anhydride, dissolved or dispersed in an aqueous alkaline bath to give a viscous solution, which is then used in the cotton slashing machine or in the Johnson slasher in the normal way. It is claimed that a semi-permanent stiffish finish is imparted, and that desizing before dyeing is not necessary. Details of the preparation of the size are given, and a list of the fibres to which it can be applied. It is suggested that this size may be of value in the preparation of industrial fabrics. C—3B.

Manufacture of Textiles from Man-Made Fibres. *Papers Second Canad. Text. Seminar*, 1950, pp. 69-93. This section of the second Canadian Textile Seminar consists of papers on (1) bonded fabrics, (2) rayon warp sizing, (3) heat setting of nylon fabrics, (4) the elastic behaviour of nylon, (5) fibre properties and their influence on fabric characteristics, and (6) processing characteristics of crimp-set nylon staple fibre. C—3B.

Starch Handling at Pineville. Anon. *Text. Industr.*, 1951, 115, No. 2, pp. 179, 181, 221. A brief description is given of the system employed in an American mill to convey starch from storage to the size-cooking room. The system includes automatic weighing. C—3B.

Cylinder Drying Machines. A. E. Williams. *Text. Merc.*, 1951, 124, No. 3237, pp. 661, 663. It is pointed out that by reasonable attention to a few factors even an old cylinder drying machine can be made to work efficiently and well. The author briefly describes methods for ensuring a dry steam supply, and for the removal of condensate and air from the cylinders. C—3B.

Evaluation of Warp Sizing. Thomas F. Evans. *Textile Research Institute (Princeton) Tech. Rep. No. 8*, 1950, 134 pages. This paper deals with two methods of assessing the suitability of a size: firstly, the measurement of mechanical properties as an index of weaving behaviour, and secondly, the full-scale weaving test. With the first method in mind, the author chose to study the dynamic resilience of sized and unsized yarn, as this property had not been studied as a means of warp-sizing evaluation. He concludes that the change in resilience of a yarn after sizing may be largely attributed to the increase in cross-sectional area of the material in the yarn. Further, these changes are not marked, and it appears that dynamic properties are not important in evaluating the weaving properties of the sized yarns. Dealing with the second method of evaluating a size, the author considers the counting of warp breaks, the counting of total stops, and the counting of total picks woven. He found the time required to establish a significant difference between two sizing processes by each of these three tests; the three times were approximately in the ratio 1:2:7. It is concluded that present loom tests are frequently of too short duration to produce significant results in the study of sizes. C—3B.

(C)—Weaving

Characteristics of Automatic Weft Changing Motions. ("Konstruktionsmerkmale des automatischen Schusswechsels bei Webstuhlen.") Kurt Weigel. *Textil-Praxis*, 1951, 6, No. 1, pp. 28-32. After a brief historical survey of the development of the automatic loom, the mechanisms of modern bobbin- and shuttle-changing devices are described in detail with the help of clear diagrams and photographs. The article concludes with some comments on the factors which must be considered when rationalisation and mechanisation of a weaving shed are contemplated. C—3C.

Filling Defects. Albert Frantz. *Text. World*, 1951, 101, No. 1, pp. 128-129. Some fabric defects due to faults in the weft and the loom are described. C—3C.

New Loom Sley Cap. Jaff Engineers, Ltd. *Text. Wkly*, 1951, 47, No. 1195, p. 368. Some details are given of the performance of a new loom sley cap which is made from a light alloy extrusion. One advantage claimed is that due to its compactness, the new cap allows a clear vision of the reed and the yarn in that vicinity. C—3C.

The Benninger Automatic Loom. W. Ouboter. *Text. Wkly*, 1951, 47, No. 1197, pp. 522, 524, 526; *Text. Merc.*, 1951, 124, No. 3229, pp. 310-312; *Text. Mfr*, 1951, 77, No. 915, pp. 126-127, 133. An illustrated description is given of the construction and operation of the Benninger non-stop shuttle-changing loom. C—3C.

Weaving Room Humidity: American and European Practices. ("U.S. Weave-Room Humidity Puzzles European Weaver.") Anon. *Text. World*, 1951, 101, No. 1, pp. 190, 192, 194. A reply is given to a question on the reason for the high relative humidities (80 to 90 per cent.) maintained in American cotton weaving sheds compared with 65 per cent. R.H. in European mills. C—3C.

Casting Out for Jacquard Flexibility. Donald A. Barrett. *Text. Industr.*, 1950, 114, No. 12, pp. 98-100. Looms with Jacquard heads of a greater hook capacity than looms for which a given fabric was originally designed, may be adapted to this fabric by "casting out", or inactivating, certain harnesses. The way in which this is done is described. C—3C.

Common Causes of Warp Breakage and Some Hints on their Prevention. Anon. *Text. Rec.*, 1951, 68, February, pp. 96-98. C—3C.

Hand Loom Weaving. Parts 1, 2 and 3. D. R. Christie. *Fibres*, 1950, 11, No. 11, pp. 389-392; No. 12, pp. 429-432; 1951, 12, No. 2, pp. 46-48. Part 1 consists of an outline of the first beginnings of hand-loom weaving and its history in England from A.D. 160-1760; a definition of the main terms employed; a description of types of looms used, and some examples of needle weaving. Part 2 deals with preparation of the warp, including warping equipment, dressing

the warp for the loom, and drawing the warp. Warping particulars are given for six check patterns. Part 3 describes the treadle hand-loom and its scope for design variation, and gives healding and weaving plans for some designs. All three articles are illustrated with ultra-simplified diagrams. C—3C.

Improving the Character of Jacquard Shedding Action. George C. Rutherford Ltd. *Brit. Rayon & Silk J.*, 1951, 27, January, p. 71. Some details are given of a new chain drive for the jacquard shedding motion. This incorporates a cam, by means of which a dwell or pause is imparted to the jacquard harness during the passage of the shuttle through the warp shed. C—3C.

Improving Weaving Efficiency in Lancashire Mills. Anon. *Text. Rec.*, 1951, 68, January, pp. 85-87. In this, the second of two articles* on the importance of regular systems of loom maintenance, the author deals with certain associated problems, in particular with the provision and checking of replacement parts and accessories. (*For first part see *J. Textile Institute*, 1951, 42, A213.) C—3C.

Positive Flexible Control for Thread Holder. Simmonds Aerocessories, Inc. *Text. Industr.*, 1950, 114, No. 12, p. 158. A positive-geared thread holder is announced for removing slack in weft threads from bobbins stored in stationary magazines on automatic bobbin-changing looms. C—3C.

Utilisation of Tubular Cops in the Manufacture of Flannel Goods. I. Kelen. *Magyar Textiltechnika*, 1950, 3, No. 3, pp. 84-87 (through *Hungarian tech. Abstr.*, 1951, No. 3, p. 17). The article describes investigations leading to the conclusion that output can be considerably increased by the use of tubular cops. C—3C.

American Dobbies. W. Middlebrook. *Text. Mfr*, 1951, 77, February, pp. 66-67, 98. Concluding his series of articles on negative dobby-shedding motions, the author deals briefly with the principal features of the Crompton and Knowles dobbies. (For previous reference see *J. Textile Institute*, 1951, 42, A256.) C—3C.

Determination of Warp and Weft Breakage Frequency During Weaving. Heinz Walter. *Textil-Praxis*, 1950, 5, No. 6, p. 348. The determination of the actual number of thread breakages should be made by entrusting a reliable weaver to note each breakage. The estimation of frequency is more difficult, since a time standard may be upset by other sources of stoppage, and breakage per number of picks is affected by width of piece (in that breakage frequency increases with width). Perhaps the best method is to find the breakage per total warp yarn length, that is, the product of total number of ends and the length of warp. A similar method should be used in estimating weft breakages. In calculating the piece-rate, it is essential that the quality of the material be checked by making check observations. Where the material and the weave are constant, one full investigation should be valid for a considerable time. In German. C—3C.

Effect of Belt Maintenance on Loom Production. Horst Popken. *Textil-Praxis*, 1950, 5, No. 7, p.423. In German. A maintenance plan for machine belting, pulleys and belt guides is presented. A small table illustrates the effect of loom and belt maintenance on the loom-speed. C—3C.

Guide to the Adjustment and Maintenance of Rüti and Roscher Automatic Looms. Hermann Schürmann. *Textil-Praxis*, 1950, 5, No. 6, pp. 349-350. In German. C—3C.

Pointers on Fixing the Batwing Pick Motion. J. L. Bove. *Text. Industr.*, 1951, 115, No. 2, pp. 187-188. C—3C.

Roller Shuttles for Hand-Looms: German Standard. German Standards Committee. *Textil-Praxis*, 1951, 6, No. 2, p. 107. In German. Standard dimensions are given for hand-loom shuttles fitted with a roller near each end. C—3C.

Swiss Selvedge Trimming Apparatus. Arthur Gabrian. *Silk & Rayon Rec.*, 1951, 25, No. 3, p. 382. The GARA apparatus for removing the tails from the selvedges of fabrics woven on automatic looms is announced. A supplementary device, known as the WEFA, enables the GARA to trim the loops of yarn left in the weaving of coloured weft fabrics. C—3C.

Varying the Pattern on a Verdol-Jacquard Loom. Werner Bollessen. *Textil-Praxis*, 1950, 5, No. 7, pp. 419-421. In German. It is shown that variations in pattern can be secured on the Verdol-Jacquard loom by small adjustments which

alter the relationships between pattern card, machine and harness. These adjustments involve no great expenditure in cost or time and are of great value where patterns involve upwards of 200 pattern cards. C—3C.

Common Faults in Woven Fabrics. Anon. *Text. Rec.*, 1951, 68, March, pp. 94-96. The article discusses the causes and the avoidance of some of the commoner types of faults which may occur during the weaving of cloth. C—3C.

Production of Good Selvedges. Helmut Hamann. *Melliand Textilber.*, 1950, 31, No. 7, pp. 469-470. In German. The production of a good non-curling selvedge depends on several factors. The warp beam must not be made too wide with respect to the finished piece, otherwise the angle subtended by the outer yarns is very large and the length becomes excessive. The weft tension must be carfully adjusted, and attention should also be paid to the arrangement of the temples. The selection of a suitable type and width of weave for the selvedge is discussed in relation to the material used in the selvedge. C—3C.

(D)—KNITTING

The Basis of Pattern in Warp Knitted Fabrics. C. H. Edwards. *Text. Rec.*, 1951, 68, January, pp. 88-90. Continuing his treatment* of warp knitted fabrics in which design depends on the exploitation of mechanical variables, the author describes the construction of four-bar fabrics. Illustrations of some examples are given. (*For previous part see *J. Textile Institute*, 1951, 42, A215.) C—3D.

Forming Patterns on Circular Knitters and Circular Spring Needle Machines. A. Vékássy. *Magyar Textiltechnika*, 1950, 3, No. 3, pp. 98-101. (through *Hungarian tech. Abstr.*, 1951, No. 3, p. 18). The mathematical correlation which exists between the number of needles on a knitting machine and the number of elements on the rotating device is discussed and explained by means of examples. C—3D.

Hosiery Identification: Printing Machine. Perma-Print Co. (Chattanooga). *Text. Industr.*, 1950, 114, No. 12, pp. 90-91. An illustrated description is given of a machine (the "Welt Perma-Printer") for printing brand and identification marks on the welts of nylon hosiery. C—3D.

The Manufacture of Jacquard Knitwear: Part II—Figure Designing on One Set of Needles. J. B. Lancashire. *Text. Rec.*, 1951, 68, January, pp. 99-101. C—3D.

The Manufacture of Jacquard Knitwear: Part III—Figure Designing on Circular Rib Machines. J. B. Lancashire. *Text. Rec.*, 1951, 68, February, pp. 101-103. A description is given of the needle selecting mechanism and its setting with reference to the Berridge Model 99D and the Mellor Bromley RLG circular rib knitting machines. C—3D.

Principles of Weft Knitting: Part IV. Bearded Needle Machines. S. B. Bradley. *Brit. Rayon & Silk J.*, 1951, 27, January, pp. 63-65. The operations of the three looping elements—the bearded needle, the loop forming sinkers, and the presser—of the bearded needle weft knitting machine are explained with the aid of diagrams. C—3D.

Tubular Knit Goods Plant Employs Portable Vacuum [and] Blower Units for Cleaning. Brunner Manufacturing Company. *Text. Industr.*, 1950, 114, No. 12, p. 97. An electrically-powered portable vacuum and blowing unit employed for cleaning knitting machinery in an American mill is briefly described. C—3D.

Warp Knitting Technology. Part XI. D. F. Paling. *Brit. Rayon & Silk J.*, 1951, 27, January, pp. 55-57. The use of "cut pressers" on bearded needle warp knitting machines is dealt with. The function of the cut presser is usually such that certain needles are allowed to miss-knit for a suitable number of courses. The constructions of some shell stitch fabrics and spot or knop effects using the cut presser are described. C—3D.

Changes in the Stocking Industry. C. Richter. *Textil-Praxis*, 1950, 5, No. 6, pp. 362-364. In German. Recent developments in the stocking industry, occasioned by changes in machinery, materials and fashion, are surveyed. C—3D.

Knitted Fur Fabric. Wilhelm Busch. *Melliand Textilber.*, 1951, 32, No. 2, pp. 117-119. In German. It is shown that the successful production of knitted fur fabric necessitates the use of knitting machines on which patterns can be reproduced, for example a jacquard flat-knitting machine. Details are given of the

mode of producing a raised effect, and several point-paper diagrams are given. C—3D.

Knitting. *Papers Second Canad. Text. Seminar*, 1950, pp. 116-134. In this section of the second Canadian Textile Seminar the following papers are presented: (1) winding for best quality and production in the knitting room, (2) training knitters and fixers of full fashioned hosiery, (3) knitter training on single-head single-unit machines for knitting full fashioned hosiery, (4) some recent developments in the knitting industry, and (5) multiple-feed latch knitting machines. C—3D.

Knitting Full-Fashioned Nylon Stockings. British Nylon Spinners Ltd. *Text. Mfr.*, 1951, 77, February, pp. 74-75. This is an extract from the nylon "Technical Service Manual". C—3D.

A New Automatic Heel-Former in Cotton Stocking Manufacture. A. Wolf. *Textil-Praxis*, 1950, 5, No. 7, p. 429. In German. A description is given of the new Mellor Bromley automatic heel-turner for cotton stockings. C—3D.

Faults Arising in the Manufacture of Children's Hose on the Circular Knitting Machine. Part I. Otto Schroeder. *Melliand Textilber.*, 1950, 31, No. 7, pp. 476-477. In German. The author discusses various types of fault arising in the manufacture of the upper portion of children's hose on the circular knitting machine. After showing the causes of these faults, the author explains how they may be avoided. C—3D.

The Manufacture of Jacquard Knitwear. IV. Garment Knitting on Circular Machines. J. B. Lancashire. *Text. Rec.*, 1951, 68, March, pp. 103-106. C—3D.

(F)—Subsequent Processes

Anatomy and Clothing Design. C. V. Williamson. *Mfrg Clothier*, 1951, 10, No. 1, 20-25. The sections into which the human body is divided for the purpose of clothing design are indicated. Some information is given on the measurement of the principal dimensions of the body, including formulæ for the estimation of a few of these. Tables giving jacket, vest, and trouser measurements for four "standard" types of figure are presented. C—3F.

Collar, Shoulders, and Sleeves. Herbert Jenner. *Mfrg Clothier*, 1951, 10, No. 1, pp. 32-33. A report is given of a lecture on technical methods of making collars, shoulders, and sleeves for coats. C—3F.

Cotton Garment Synchro Production. Wakefield Shirt Co., Ltd. *Mfrg Clothier*, 1951, 10, No. 2, pp. 103-106. A brief description is given of a production system (known as the "Synchro" system) as applied to the manufacture of shirts and blouses. A flow sheet type of plan is included showing the sequence of processes through which the garments pass. C—3F.

Drafting Ladies' Fashion Rainwear. Leslie Baker. *Mfrg Clothier*, 1951, 10, No. 1, pp. 35-37. Diagrams and detailed instructions are given for the drafting of a pattern for a lady's fashion raincoat. C—3F.

Machinery and Equipment for Clothing Industry. *Mfrg Clothier*, 1951, 10, No. 1, 26-28. Brief descriptions are given of some of the exhibits shown at an exhibition of equipment for the clothing manufacturing industry. These include steam presses and sewing machines. C—3F.

Behaviour of Cloth in Use. F. Courtney Harwood. *Mfrg Clothier*, 1951, 10, No. 1, pp. 30-31. The need for more knowledge by makers-up about the behaviour of textiles in use is emphasised. Particular reference is made to the shrinkage properties of the wool fibre and the implications in making-up and laundering. C—3F.

Heating Pads and Blankets. H. Reik. *Elect. Rev.*, 1951, 148, No. 3825, pp. 545-548. Some recommendations are made, for the benefit of manufacturers, on the design and construction of electrical heating pads and blankets. C—3F.

Improved Method for Cutting Towels from Long Rolls. Anon. *Text. Industr.*, 1950, 114, No. 12, pp. 147-148. C—3F.

High Tenacity Stitching Thread in Compound Cloths. J. Seidler and A. Johnson. *Text. Mfr.*, 1951, 77, February, p. 71. The authors examine the possibilities offered by low denier high-tenacity rayon yarns, and deal briefly with some of their uses in fabric construction. C—3F.

(G)—FABRICS

Inclusion of Rayon and Nylon in Men's Suitings. ("Ueber den Einsatz von Zellwolle und Perlon-Faser in Herrenanzugstoffen.") Hans Driesch. *Textil-Praxis*, 1951, **6**, No. 1, pp. 36-39. Factors affecting the composition of woollen yarns containing additions of either rayon or nylon are discussed in relation to yarn strength, toughness, processing qualities (spinning, weaving, dyeing, finishing), appearance, and so on. The preparation of mixture yarns is briefly surveyed and the properties of several fabrics are presented in tabular form. In addition, details of the structure, composition, weave, weight, and physical and mechanical test results are given for six different specimens presented with the paper. C—3G.

Knitted Glove Designs Are Made by Simple Repeats. Albert M. Young. *Text. World*, 1951, **101**, No. 1, pp. 108-109. Diagrams with brief notes are presented to illustrate the principles of applying a design to a knitted glove. C—3G.

Pattern in Warp-knitted Fabrics. ("Die Mustermöglichkeiten in Kettenwaren.") M. Netz. *Textil-Praxis*, 1951, **6**, No. 1, pp. 44-47. The development of different patterns in warp-knitted fabrics is described and illustrated. C—3G.

Planned Colour and Weave Effects in Single Cloth Structures. ("Woven Design in Practice. Part 3.") D. C. Snowden. *Brit. Rayon & Silk J.*, 1951, **27**, January, pp. 59-60. Weaving diagrams and brief details are given for the construction of some colour-and-weave effects in woven fabrics. (For previous article see *J. Textile Institute*, 1951, **42**, A216.) C—3G.

Rayon Cloth Calculations—2. A. T. C. Robinson. *Silk & Rayon Rec.*, 1951, **25**, No. 2, pp. 245-246, 249, 251. The calculation of rayon cloth settings is dealt with. Some formulæ are stated, and examples of their use are given for spun rayon Utility dress fabrics. The author deals with simplified calculations of the "cover factor" of rayon yarns. C—3G.

Studies in Textile Design: Part V—Diamond Patterns. Anon. *Text. Rec.*, 1951, **68**, January, pp. 95-96. Six examples of various diamond patterns are illustrated and briefly described. C—3G.

Studies in Textile Design: Part VI—Further Honeycomb Weaves. Anon. *Text. Rec.*, 1951, **68**, February, pp. 91-92. Some honeycomb weaves are described in which the effects produced are heightened by using yarns of different shrinkage properties, or of different colour, for the warp and weft. C—3G.

Double Fabric Held by a Third Warp. W. Görlach. *Textil-Praxis*, 1951, **6**, No. 2, pp. 119-121. In German. The structure and manufacture of fabrics, made up of a double warp and a double weft, and a binding third warp, are discussed in some detail. C—3G.

Fashion Fabrics. Anon. *Text. Merc.*, 1951, **124**, No. 3233, pp. 496-497, 499. The constructions of three novelty worsted fabrics for the export market are described and illustrated. C—3G.

Gaberdine Weaves. E. Basold. *Textil-Praxis*, 1951, **6**, No. 2, pp. 110-111. In German. The structures of the more popular gaberdines are discussed. Specifications for 20 types are given. C—3G.

Imitation Leno Weave. H. Petzold. *Textil-Praxis*, 1950, **5**, No. 7, p. 422. In German. The principle involved in the production of imitation leno weaves is explained and exemplified by point-paper diagrams and photographs. C—3G.

Reinforced, Double and Multiple Weaves. Josef Schmachtel. *Melliand Textilber.*, 1951, **32**, No. 1, pp. 25-28; No. 2, pp. 112-116; No. 3, pp. 181-187. In German. The articles describe in detail different methods of manufacturing extra weighty cloths or multiweaves with cotton and wool. In addition to a large selection of point-paper patterns, diagrammatic cross-sections illustrate the structure of the various cloths. C—3G.

Tartan Weave. Josef Laurenzen. *Textil-Praxis*, 1951, **6**, No. 2, pp. 122-123. In German. The arrangement of ends in the warp, the shuttles on a four-box automatic dobby loom with eight healds, and the order of picks, are described for a tartan weave. C—3G.

Velveteen. Helmut Hamann. *Textil-Praxis*, 1951, **6**, No. 2, pp. 117-119. In German. The manufacture and various weaves of the velveteen or corduroy type of materials are discussed. C—3G.

Woven Fabric Effects On a New Circular Bearded-Needle Knitting Machine. Anon. *Text. Merc.*, 1951, **124**, No. 3233, pp. 505-507. Some of the types of fabrics that can be produced on a new circular spring needle knitting machine (built by the Tomkins Brothers Company, New York) are illustrated and briefly described. C—3G.

PATENTS

Automatic Winding Machine Spool Feeding Apparatus. Maschinenfabrik Schweiter A.G. B.P.639,002: Appl. and filing 3/6/1947; Publ. 21/6/1950; Swiss appl. 5/6/1946. The invention relates to apparatus for feeding spools from a disordered mass in a rotating drum to a transporting device, particularly for supplying them to automatic winding machines. An equalising magazine is provided between the drum and the transporting device to compensate for fluctuations in the supply and take-off, combined with means for automatically stopping the supply of spools if the magazine is full except for one hole. C.

Straight-bar Knitting Machine Driving Apparatus. Lancashire Dynamo and Crypto Ltd., Nevelin Electric Co. Ltd., William Cotton Ltd., F. T. Cowley and J. E. Lynan. B.P.639,118: Appl. 14/3/1946; Filing 24/1/1947; Publ. 21/6/1950. The invention concerns driving apparatus for a straight-bar knitting machine, especially a Cotton's Patent fully-fashioned frame equipped with automatic weft-turning and/or carrier-changing mechanism. The drive comprises a d.c. motor fed by a grid-controlled mercury-arc rectifier, a manually operated phase shifter for controlling the grid bias, and manual and pattern-controlled means for varying the motor field. C.

Nylon Monofil Package. Willie Hepworth and Imperial Chemical Industries Ltd. B.P.639,274: Appl. 29/10/1947; Filing 27/10/1948; Publ. 28/6/1950. The invention seeks to overcome the tendency to uncoiling of resilient material such as nylon monofil when wound on a bobbin. For example, the material is wound on a collapsible mandrel between two cardboard discs, these are connected rim to rim by adhesive tape before the mandrel is removed, and the holes in the discs are covered by adhesive labels. C.

Warping Machine Servo-brake and Disengaging Mechanism. J. A. G. M. van der Hofstadt. B.P.639,356: Appl. and filing 18/3/1948: Publ. 28/6/1950; Belgian appl. 28/6/1950. A combined servo-brake and disengaging mechanism for a high-speed textile machine (*e.g.* a warping machine), comprises a member having a limited helical movement (*e.g.* a brake drum) which, when set in motion in the direction of rotation of the machine through the agency of a control device, comes into frictional engagement with a clutch (*e.g.* a friction plate) and by its helical motion releases the clutch and exerts on it a progressive braking action. C.

Laddered Stocking Mending Tool. Olga Joho and Hans Joho. B.P.639,479 and 639,480: Appl. and filing 19/8/1947; Publ. 28/6/1950; Swiss appl. 13/1/1941 and 8/8/1946. (1) A tool for mending ladders in stockings comprises a hollow shank ending in a hook, and a spring-biassed cam for alternately opening and closing the hook, the cam being formed on a slide member guided within the shank. A depression for temporarily receiving the thread before it is thrown off is formed in the slide behind the cam and the front of the cam has a groove into which the pointed end of the hook enters when closed. (2) The pointed end of the hook in this modification is in the form of a latch and means are provided for adjusting the tension of the cam spring so that the tool can be used with fine, medium or coarse knitted hosiery. C.

Buckskin Loom Warp Stop-motion. Georg Fischer A.G. B.P.639,692: Appl. and filing 16/1/1948; Publ. 5/7/1950; Swiss appl. 29/11/1947. The movable parts, including a toothed rack, of a warp stop-motion for a buckskin loom are driven directly from the crank-shaft, the rack being reciprocated in synchronism with the motion of the sley. C.

Centre Selvedge Weaving Device. Jaime Picanol. B.P.639,715: Appl. and filing 29/1/1947; Publ. 5/7/1950; Belgian appl. 27/11/1943. The claim is for a combination of three laths that can carry out a straight up-and-down move-

ment parallel to the plane of the heald frames for the production of two selvedges on adjacent sides of two fabrics being woven simultaneously. The laths are eyeletted and slotted for guiding warp ends so that one end can be twisted about two other ends after each pick or after every two or four picks, this resulting in stronger centre selvedges than usual in such weaving. C.

Loom Shedding Mechanism. Jaime Picanol. B.P.639,771: Appl. and filing 26/3/1946; Publ. 5/7/1950; Belgian appl. 3/12/1940 and 15/5/1941. The claims are for shedding motions for looms in which each heald frame (or group of heald frames) is driven by a lever carrying two rollers, each of which comes to rest on an appropriate cam. The two cams are fixed on a common shaft and the contact points between the cams and their rollers make with the common axis of the cams an angle ranging from 60° to 180°. The rollers are adjustable on their driving lever, *e.g.* by means of slots and screws, to compensate for wear, and the heald frames will drop simultaneously when the cams are withdrawn from their working position. C.

Circular Knitting Machine Yarn Trapping Mechanism. G. Stibbe and Co. Ltd., E. V. Stibbe and George Palmer. B.P.639,773: Appl. 6/8/1946; Filing 14/6/1947; Publ. 5/7/1950. The invention relates to a yarn trapping and severing unit for application to circular knitting machines supplied by different yarns from a number of feeding locations, and especially to a device that will deal with yarns from, at least, two feeders. The trapping unit comprises two trappers, one constituted by a pair of flat jaws disposed horizontally in scissors-like arrangement and the other comprising the lower of the two jaws and a complementary, fixed semi-circular plate. Each unit is provided with a common cutting device. C.

Knitted Fabric Repairing Needle. Edmond Lalanne and Pierre Grandjean. B.P.639,816: Appl. and filing 1/6/1948; Publ. 5/7/1950; French appl. 4/6/1947. In a repair tool of the hooked needle and cam type the cam has a curved slide portion concentric with the pivot whereby when the hook has engaged a first thread the second will bear on the slide and not impede the oscillation of the cam. C.

High-speed Warp Knitting Machine. S. G. Dehn (for Vanity Fair Mills, Inc.). B.P.639,831: Appl. and filing 21/11/1946; Publ. 5/7/1950. The first of 47 claims is for "A flat warp knitting machine, including a stationary needle guide provided with a needle-hook closing tongue the free end of which extends into the spaces formed between the blades of a knock-over sinker bar, a needle bar carrying a needle guided by the above guide and having a hook operable through the said spaces, at least one thread guide for conducting a thread to the needle, and means for operating the needle bar, sinker and guide in timed relation to effect a knitting operation". Details are shown in 19 sheets of machine drawings. C.

Gripper Shuttle Loom. Sulzer Frères Soc. anon. B.P.639,856: Appl. and filing 6/6/1947; Publ. 5/7/1950; Swiss appl. 7/6/1946. The invention relates to a "gripper" loom in which the weft clamping device includes independent mechanism for reducing the clamping force regularly at a pre-determined point in the weaving cycle, so that the weft projecting from the fabric can be doubled over into a following shed and the cloth is woven with a "turn-over" edge. C.

Positive Loom Dobby. William Felton and David Crabtree and Son Ltd. B.P.639,880: Appl. 21/11/1947; Filing 15/11/1948; Publ. 5/7/1950. The invention relates to a positive dobby that permits of straight pegging and operates to produce centre or closed shedding of the warp. It has slidable, weight- or spring-loaded cams which actuate the oscillatable members under the influence, through levers, of the pegs of a lag chain or bowls of a bowl chain. Each jack can be rendered inoperative by arranging each bar to ride on a support that is displaceable so that the oscillatable member is no longer within the range of the reciprocated members. C.

Cargo Net: Construction. L. P. Frieder. B.P.639,925: Appl. and filing 9/5/1946; Publ. 12/7/1950; U.S.A. appl. 8/6/1945. The invention relates to heavy-duty nets the essential feature of which is that the interlacing rings and handles are made of tubular braided fabric spliced end to end. The specification refers to a net with a border of braided nylon that withstands a 5,000-lb. tensile test and body rings made as above from a 3,000-lb. nylon braid. C.

Resilient Loom-Picker. Owen McGaughney. B.P.640,053: Appl. and filing 13/9/1948; Publ. 12/7/1950. The claim is for a picker head of light aluminium alloy recessed on one or both striking faces to take a resilient plug (or two plugs) of rubber or the like, bonded to the metal. The face of the plug is flush with the metal, and at such an angle that the shuttle receives a true end-on blow and "lifting" is minimised. C.

Heald-Selecting Device. Koefoed, Hauberg, Marstand og Helweg, Akt. "Titan". B.P.640,083: Appl. and filing 12/10/1945; Publ. 12/7/1950; Danish appl. 19/6/1944. In a device for selecting healds for threading, the healds being indicated in a sequence corresponding with the weaving diagram, indicating members are provided that, in a pre-determined sequence initiated by a manual or pedal movement, automatically, by electrical means, provide a visible indication of the selected heald or of its carrying shaft, and, if desired, of the warp from which the thread is to be extracted. C.

Automatic-Loom Shuttle. Maschinenfabrik Rūti vormals Caspar Honegger A.G. B.P.640,200: Appl. and filing 6/1/1948; Publ. 12/7/1950; Swiss appl. 6/1/1947. To reduce the weight of a shuttle for bobbin-changing looms by dispensing with the usual metallic spring that grips the head of the bobbin, a slot is provided that extends from a recess for the reception of the head of the bobbin, the head being gripped by the resilient side walls of the recess. C.

Gripper-Shuttle Loom. Sulzer Frères S.A. B.P.640,214: Appl. and filing 3/6/1948; Publ. 12/7/1950. The invention relates to various means for displacing the weft from the path of the thread transfer device of a gripper-type loom while this device is being moved towards the warp shed. Details are shown in fifteen machine drawings. C.

Circular-knit Shaped Stockings: Production. F. H. Robottom. (1) B.P.640,342: Appl. 5/12/1944; Filing 10/5/1945; Publ. 19/7/1950. (2) B.P.640,634; Appl. 27/4/1945; Filing 31/1/1946; Publ. 26/7/1950. (1) The invention provides a method for the production of cheap stockings, resembling fully-fashioned ones, by knitting tubular fabric and a special type of heel pouch on a circular machine, cutting the leg portion to shape, and seaming and linking the parts together. (2) This invention is concerned with the formation of the heel part as a selvedged band of fabric united at its ends to the fabric of the back of the leg and of the foot bottom. C.

Circular Knitting Machine Drive-Changing Mechanism. C. W. Perkins. B.P. 640,388: Appl. 12/9/1947; Filing 11/9/1948; Publ. 19/7/1950. The claim is for lever, clutch and cam mechanism for changing the drive of a circular knitting machine of the superposed cylinder type from rotary to reciprocatory motion and *vice versa*. C.

Circular Knitting Machine Quadrant-Driving Mechanism. C. W. Perkins. B.P. 640,408: Appl. 29/1/1948; Filing 19/10/1948; Publ. 19/7/1950. A circular knitting machine of the superposed cylinder type, having a quadrant device for effecting reciprocatory motion is characterised by a connection between the crank shaft and the quadrant by means of a link having forked end parts so that the quadrant runs centrally between these ends. C.

Bonded Cyanoethylcellulose Fibre Sheets: Production. Courtaulds Ltd., J. H. Macgregor and Frank Happey. B.P.640,411: Appl. 3/3/1948; Filing 3/3/1949; Publ. 19/7/1950. A bonded fibre sheet material is composed wholly or partly (say not more than 9 per cent.) of cyanoethylcellulose fibre (the product of the action of acrylonitrile on cellulose) which is carded into a web and rendered adhesive (for bonding) by the action of dilute caustic alkali or acetone. C.

Warp Thread Sequence-Securing Device. Koefoed, Hauberg, Marstrand og Helweg, Akt. "Titan". B.P.640,449: Appl. and filing 12/10/1945; Publ. 19/7/1950; Danish appl. 6/11/1942. To ensure the correct sequence of ends or groups of ends in a warp sheet (for the looming operation, etc.) the ends are entwined by one or more rows of connected stitches formed by means of one or two threads. Lease rods are thereby dispensed with. C.

Variable-speed Schrage Motor Drive for Flat Knitting Frames. British Thomson-Houston Co. Ltd., C. V. Hill and G. F. Lowe. B.P.640,751: Appl. 3/5/1948; Filing 3/5/1949; Publ. 26/7/1950. The invention consists in the

combination of a Schrage-type motor with a servo-mechanism comprising a "slave" member connected with the brush shifting mechanism of the motor and following the movements of a "master" member connected with a control mechanism on the flat knitting machine. Preferably, the "slave" and "master" comprise a hydraulic piston in cylinder, and valve members, respectively, mounted on the motor. C.

Yarn-Detecting Stop-motion. I. L. Berridge & Co. Ltd., C. S. Martin and A. E. Cooke. B.P.640,961: Appl. 5/12/1947; Filing 2/12/1948; Publ. 2/8/1950. A device for detecting yarn failure in connection with a stop-motion (for example, for a knitting machine) comprises two opposed series of intercalating "fingers" that provide a crutch or ledge along which the yarn runs, and move relatively to a signalling and stopping position if the yarn tension exceeds or falls short of a pre-determined amount. C.

Device for Withdrawing Twisted Yarn from Yarn Packages. Courtaulds Ltd. and Fred Wholton. B.P.640,967: Appl. 5/2/1948; Filing 4/2/1949; Publ. 2/8/1950. Apparatus for use in unwinding twisted yarn (for example when feeding a knitting machine) so as to prevent overrunning and snarling of the yarn when a stop occurs, comprises a horizontal spindle for the package and a framework over which a curtain of fabric (for example warp-knit fabric) is hung so that it presses lightly on the package. If the package needs to be enclosed in a humidified atmosphere, the fabric is passed through slots in the casing. C.

Saponified Cellulose-Acetate Yarn: Sizing. British Celanese Ltd. B.P.640,989: Appl. and filing 10/7/1947; Publ. 2/8/1950; U.S.A. appl. 20/7/1946. A size mixing for saponified cellulose acetate yarns comprises, for example, casein (50 lb.), triethanolamine (8 lb.), oleic acid (2 lb.), a de-foaming agent (3 lb.), a preservative (0·8 lb.) and water (to make 100 gallons). C.

Darning Appliance. H. E. Parker. B.P.641,063: Appl. 6/9/1948; Filing 2/9/1949; Publ. 2/8/1950. An appliance for use in darning knitted or woven goods consists of a pair of corrugated plates between which the material is gripped, the waves being scored across at right angles with grooves as close together as the desired pitch of darning, so that the grooves presents channels through which the darning needle may be passed. Dowel pins are used to hold the plates and the material in position. C.

Straight-Bar Knitting Machine Yarn Carrier Selecting and Driving Mechanism. Wildt & Co. Ltd., E. S. Barsby and A. P. Saunders. B.P.641,338: Appl. 1/9/1948; Filing 28/7/1949; Publ. 9/8/1950. The primary object of the invention is to provide a compact yarn carrier driving-mechanism whereby the over-all width of a straight-bar knitting machine can be reduced to a minimum and the required variations in the extent of travel of the carriers (for producing shaped structures) can be maintained without engendering unnecessary friction. Details are shown in six sheets of machine drawings. C.

Straight-Bar Knitting Machines for Run-resistant Fabric. William Cotton Ltd. (Inventors: Leonard Brown and J. E. Lynam). B.P.641,433: Appl. 1/5/1947; Filing 3/5/1948. B.P.641,447: Appl. 21/8/1947; Filing 10/8/1948. B.P. 641,448: Appl. 22/8/1947; Filing 6/8/1948. All published on 9/8/1950. These inventions are developments of B.P.527,234 and earlier patents, and relate to the knitting of run-resistant fabric on straight-bar machines of Cotton's Patent and Lamb types. (1) This invention is concerned with mechanism for knitting alternate courses of a ground weft and a finer weft for locking the loops. Details are shown in 15 sheets of machine drawings. (2) In this invention the main claim is for a device, additional to the press edge and the knocking-over bar, for producing such needle deflection as will result in the heads of the lower needles being buried in eyes in the stems of the upper needles. There are 16 sheets of machine drawings. (3) The chief objects of the third invention are to obviate the necessity for shogging after each sequence of motions and to secure a higher rate of production; there are 15 sheets of machine drawings. C.

Multiple-Needle Sewing-Machine Thread-Tensioning Device. High Speed Machines Ltd. (Inventor: L. M. Ballamy). B.P.641,457: Appl. 24/12/1947; Filing 24/1/1949; Publ. 9/8/1950. The invention relates to a fluid pressure device for applying equal drag to a number of threads being fed to a multiple-needle sewing machine. Individual drags that press a thread against an abut-

ment are themselves pressed by air supplied from a chamber with a resilient wall, the chamber being fed from a valve-controlled source of compressed air. C.

Tubular Fabric Cutting Device. F. H. Robottom. B.P.641,463: Appl. 22/12/1945; Filing 4/11/1946; Publ. 16/8/1950. A device for cutting tubular fabric (for example, the triangular pieces for stocking toes) comprises an upstanding support, a flat board or form (template) to receive the tube, upper and lower clamping levers pivoted to the support and provided at their free ends with plates for gripping the fabric-covered board between them, spring means for urging the plates together, and wedge means for separating them as the operator requires. C.

Plastic-coated Fabrics: Seaming. Ioco Ltd. and Daniel Gallacher. B.P. 641,576: Appl. 16/1/1948; Filing 14/1/1949; Publ. 16/8/1950. Seams are formed in fabrics coated with thermoplastic resins (polyvinyl chloride and the like) by stitching the lapped edges together, applying a strip of plastic material in or on the joint, and welding in an electronic apparatus. C.

Diethylamine Sulphonate Anti-static Dressing Agent: Application. British Celanese Ltd. (Inventors: H. F. Oxley and E. B. Thomas). B.P.641,580: Appl. 17/3/1948; Filing 15/3/1949; Publ. 16/8/1950. An anti-static and lubricating dressing for cellulose acetate, *etc.*, comprises a diethylamine salt of an aliphatic (for example, lauryl) sulphonic acid and a lubricating oil. C.

Automatic Full-Fashioned Hosiery Machine. Wildt & Co. Ltd., E. S. Barsby and A. P. Saunders. B.P.641,669: Appl. 22/9/1947; Filing 30/8/1948; Publ. 16/8/1950. The invention relates to a compact, wholly automatic fine-gauge machine comprising a single head for knitting full-fashioned stocking blanks having continuously knitted leg and complete heel and foot portions. It is characterised by the inclusion of a vertically movable curved needle bed furnished with an arcuate series of fixed spring beard needles. The 22 claims cover the mechanism and the method of making a complete full-fashioned hose blank. There are 15 sheets of machine drawings. C.

Circular Loom Shuttle Guide. Saint Frères. B.P.641,823: Appl. and filing 2/1/1948; Publ. 23/8/1950; French appl. 17/1/1947 [Addition to B.P.594,599*]. The wooden race-way of U-section for guiding the shuttle in a circular loom is lined with bristles, or material having a stiff pile (for example, of nylon), so that the warp threads may sink into the lining and be protected from excessive wear between the shuttle and the race-way. (*See *J. Textile Institute*, 1948, **39**, A136.) C.

Elastic Composite Fabrics and Process for Making Same. Theophilus A. Feild, Jr, and Benjamin Michalko, assignors to Union Carbide and Carbon Corporation, U.S.A. U.S. Patent 2,536,163 dated Jan. 2, 1951. C.

Draw-Cord Weaving Mechanism for Textile Looms. Charlton Hudson Williams, assignor to Swift Manufacturing Co., U.S.A. U.S. Patent 2,536,247 dated Jan. 2, 1951. C.

Loom Shuttle. John J. Kaufmann, Jr., assignor to Steel Heddle Mfg Co., U.S.A. U.S. Patent 2,537,140 dated 9/1/1951. C.

Unwoven Fabric. Hugo Wurzburger. U.S. Patent 2,537,323 dated 9/1/1951. C.

Receiving and Return Mechanism for Spoolless Shuttles in Looms for Weaving. Erwin Pfarrwaller, assignor to Sulzer Frères, Société Anonyme, Switzerland. U.S. Patent 2,538,798 dated Jan. 23, 1951. C.

Process for the Production of Batting Material. Frederick G. Dodge, and George Schneider, assignors to Celanese Corporation of America. U.S. Patent 2,538,899 dated Jan. 23, 1951. C.

Warp Let-off Mechanism. George E. Clentimack, assignor to Draper Corporation, U.S.A. U.S. Patents 2,539,295/6 dated Jan. 23, 1951. C.

Woven Glass Fabric and Method of Making Same. Boutwell H. Foster, assignor to U.S. Rubber Co. U.S. Patent 2,539,301 dated Jan. 23, 1951. C.

Device for Tightening the Weft in Circular Looms. Victor Marie Joseph Ancet, assignor to Regina S.A. Tangiers. U.S. Patent 2,539,984 dated Jan. 30, 1951. C.

Warp Knitting Machine. Fritz Lambach, assignor to Robert Reiner Inc. U.S.A. U.S. Patent 2,540,128 dated Feb. 6, 1951. C.

Picker Stick Linkage and Hydraulic Check. George H. Hufferd, assignor to Weatherhead Co., U.S.A. U.S. Patent 2,540,673 dated Feb. 6, 1951. C.

Thread Cutter and Clamp for Looms. Bluffie L. Rhodes. U.S. Patent 2,540,912 dated Feb. 6, 1951. C.

Stitch Picker [for Fabric Web]. Artis Elmer Charles, assignor to Carolyn Chenilles Inc., U.S.A. U.S. Patent 2,541,035 dated 13/4/1951. C.

Yarn Feed Control System [to Knitting Machines]. Marion E. Blake. U.S. Patent 2,541,192 dated 13/2/1951. C.

Woven Fabric [for Upholstery]. James A. Flegg. U.S. Patent 2,541,231 dated 13/2/1951. C.

Apparatus for Drying Warp and the Like. Paul R. Rose, assignor to Bachmann Uxbridge Worsted Corpn, U.S.A. U.S. Patent 2,541,383 dated 13/2/1951. C.

Thread Cutter for Weft Replenishing Looms. William A. Blanchard, assignor to Crompton & Knowles Loom Works, U.S.A. U.S. Patent 2,542,465 dated 20/2/1951. C.

Bobbin Receiver for Weft Replenishing Looms. Richard G. Turner, assignor to Crompton & Knowles Loom Works, U.S.A. U.S. Patent 2,542,598 dated 20/2/1951. C.

Lappet Loom. John S. Kane. U.S. Patent 2,542,677 dated 20/2/1951. C.

Yarn Carrier [for Knitting Machines]. Raymond J. Good, assignor to Fred C. Good & Sons, Inc., U.S.A. U.S. Patent 2,542,960 dated 20/2/1951. C.

Composite Fibrous Products and Method of Making Same. Carleton S. Francis, Jr., assignor to American Viscose Corporation, U.S.A. U.S. Patent 2,543,101 dated 27/2/1951. C.

Device for Preventing False Weft Detection. Leon A. Carron, assignor to Crompton & Knowles Loom Works, U.S.A. U.S. Patent 2,543,488 dated 27/2/1951. C.

Pneumatic Thread Remover for Looms. Richard G. Turner, assignor to Crompton & Knowles Loom Works, U.S.A. U.S. Patent 2,543,513 dated 27/2/1951. C.

Shuttle Binder [for Shuttle-Box Swell]. Charles Galland. U.S. Patent 2,544,015 dated 6/3/1951. C.

Stiff Narrow Fabric [for Corsets]. William West, assignor to Donahue Corpn. of Canada Ltd. U.S. Patent 2,544,373 dated 6/3/1951. C.

Loom. Henry James Craymer. U.S. Patent 2,544,526 dated 6/3/1951. C.

4—CHEMICAL AND FINISHING PROCESSES

(A)—Preparatory Processes

Enzyme Desizing of Textiles: Theory. Charles L. Kloss. *Rayon Synth. Text.* 1951, **32**, No. 1, pp. 81-82, 92. The variables which influence the activity of enzymes are outlined, and brief descriptions are given of some of the methods used for the desizing of textiles by means of ameolytic and proteolytic enzymes. C—4A.

Modern Textile Auxiliaries. A. J. Hall. *Silk & Rayon Rec.*, 1951, **25**, No. 2, pp. 236, 239, 241, 242; No. 3, pp. 378, 381. The list of textile auxiliaries is continued (for previous reference see *J. Textile Institute*, 1951, **42**, A 217). C—4A.

(E)—Drying and Conditioning

Pin-Stenter Technique Varies with Fabric Framed. K. S. Laurie. *Text. World*, 1951, **101**, No. 1, pp. 114-115, 267. Some features of the pin-stenter (hydraulic and electronic cloth guiders and drying arrangements) are briefly described. The use of the pin-stenter for spun rayons, crêpes, light wool fabrics, tricot fabrics, and nylon setting is considered. C—4E.

A Study in Hydroextraction. H. Inglesent and J. Anderson Storrow. *Ind. Chem.*, 1951, **27**, February, pp. 76-81. The critical wetting rate characteristics of cakes spinning in a perforated basket centrifuge have been studied. The cakes used consisted of finely divided chalk built up (by centrifuging) on a cloth

base. A photoelectric device has been developed for observing the critical wetting condition. Results are presented and discussed, including the effect of compression of the cake. **C—4E.**

A Study of Drying. Institute of Fuel. *Dyer*, 1951, **105**, No. 6, pp. 363-366; No. 7, pp.425-429, 449-455. Summaries are given of some of the papers (those of interest to the textile industry) presented at a conference on drying. These cover accelerated cylinder drying; the drying of dyed goods; loose stock, skein, and package drying machinery; the steam consumption of stenters; the drying of dyed viscose rayon cakes; and the drying of viscose staple fibre. **C—4E.**

The Rate of Drying of Fabrics. Lyman Fourt, Arnold M. Sookne, Daniel Frishman, and Milton Harris. *Text. Res. J.*, 1951, **21**, No. 1, pp. 26-33. A study has been made of the influence of structural factors on the water-holding capacity of a fabric, and of the thickness of the air films which govern transfer of water vapour away from, and of heat towards, the fabric during drying. The results show that by and large all fabrics dry at the same rate (if hung as in household drying in a free space), but that the time of drying depends on the amount of water originally present, so that some fabrics dry sooner than others. The main portion of the drying time shows this constant rate of drying. The water-holding capacity of a fabric depends on the way in which it is supported, and also on the type of fibres from which it is made, but these factors have almost no effect on the rate of drying, which is controlled by the resistance of air layers to the passage of heat. Increasing the hairiness of the surface (in order to give more area for evaporation) produces no increase in the rate of drying, and in some cases even has a retarding effect. **C—4E.**

(G)—BLEACHING

Hydrogen Peroxide Stabilisation. ("Notiz über Zersetzlichkeit und Haltbarmachung von Wasserstoffperoxid.") E. Abel. *Z. anorg. allgem. Chemie*, 1950, **263**, Nos. 5-6, 229-232. Expressions are derived for the conditions under which impurities effect decomposition of hydrogen peroxide, and for conditions under which the effect of impurities might be minimised. **C—4G.**

Sodium Chlorite Bleaching of Vegetable Fibres: General and Chemical Considerations. Hermann Baier. *Melliand Textilber.*, 1951, **32**, No. 2, pp. 141-146. In German. The mild action of sodium chlorite on cellulosic materials is particularly useful in the bleaching of sensitive fibres such as rayon. The physical and chemical properties of the salt are described, the various methods of applying it as a bleaching agent are detailed, and the reactions involved are discussed. These methods of application include the use of: acid, chlorine (hypochlorite), aldehyde, persulphate, and chlorine dioxide, modified bleaches. The actions of these mixtures both on cellulosic and non-cellulosic materials are discussed. There are 23 references. **C—4G.**

(H)—MERCERISING

Mercerisation of Piece Goods. Parts 1 and 2. A. J. Hall. *Fibres*, 1950, **11**, No. 9, pp. 323-325; No. 10, pp. 351-353 and 354. Part 1 deals with the mercerising of cotton cloth containing acetate rayon, and lists the precautions that must be taken if the troubles arising from saponification of the rayon are to be avoided. Part 2 discusses three methods of mercerising cotton cloth containing viscose rayon: (1) rapid washing out of the alkali by boiling water; (2) washing out with salt solutions; and (3) mercerising with caustic potash instead of caustic soda. **C—4H.**

(I)—DYEING

Dyeing of Polyamide and Polyamide/Natural-Fibre Mixtures. ("Das Färben von Nylon bzw. Perlon und Mischungen mit Naturfasern.") R. Haynn. *Textil-Praxis*, 1951, **6**, No. 1, pp. 66-71. The conditions for dyeing polyamide and polyamide-mixture yarns in various types of fabric (including hosiery) by means of a variety of dyestuffs, are given. The stripping and detection of nylon are also briefly dealt with. **C—4I.**

Even-dyeing of Rayon. ("Zur Frage des gleichmässigen Anfärbens von Reyon.") E. Köster. *Textil-Praxis*, 1951, **6**, No. 1, pp. 57-58. Unevenness in dyeing in rayon fabrics or yarns can usually be traced back to faulty processing. The minimising of these faults can rarely be successfully countered by prior washing and/or bleaching. Treatment with sodium hydroxide or potassium hydroxide

solutions, or their mixtures, is likewise of doubtful value, as is the addition of excess quantities of electrolytes or weak acid to the dyebath, or prolonged dyeing. It has been shown that those dyestuffs whose "half-dyeing time" is shortest are most likely to give satisfactory results. Similarly, those dyestuffs requiring only moderate dyeing temperature tend to overcome unevenness in dye-affinity of the fibre. C—4I.

Logwood and Its Application: Part IV. Dyeing of Nylon and Acetate Rayon. O. Newsome. *Dyer*, 1951, 105, No. 4, pp. 227-229. Technical details are given on the application of logwood dyes to nylon and acetate rayon. These cover after-chrome methods of dyeing nylon on the winch or the jig machine, a chrome mordant process for nylon, and an after-chrome method of dyeing actetate rayon. (For Part III, see *J. Textile Institute*, 1951, 42, A260.) C—4I.

New Vat Dyeing Process: Uranium Acetate as a Catalyst. Shamrock Textile Processing Company. *Text. Merc.*, 1951, 124, No. 3231, p. 404. It is reported that a photochemical vat dyeing process, in which uranium acetate is used as catalyst, is now being operated on a commercial scale. A few details of the process are given. C—4I.

Processing of Nylon. Part 13. Nylon in the Worsted Industry. British Nylon Spinners Ltd. *Text. Merc.*, 1951, 124, No. 3230, pp. 357-358, 385. This further extract from the Nylon Service Manual covers the processing of nylon/worsted blends, the properties of fabrics containing nylon/worsted yarns, and the dyeing and finishing of such fabrics. C—4I.

Salt: Its Importance and Use in the Textile Industry. Morton Salt Company (E. B. Tustin, Jr.). *Rayon Synth. Text.*, 1950, 31, No. 12, pp. 83-84. This is a review of the use of salt in the textile industry in the manufacture of rayon and synthetic fibres, bleaching, dyeing and water-softening. C—4I.

The Package Dyeing of Synthetic Fibres. G. T. Douglas. *Rayon Synth. Text.*, 1950, 31, No. 12, pp. 49-50. A report is given of a lecture delivered at a meeting of the Canadian Association of Textile Colourists and Chemists. C—4I.

The "Telon" Fast Dyes for Wool-Polyamide and Pure Polyamide Yarns. ("Die Telonlicht- und Telonechtfarbstoffe für das Färben von Wolle-Polyamid-fasermischartikeln und von reinen Polyamidfasern.") K.-H. Fluss. *Textil-Praxis*, 1951, 6, No. 1, pp. 61-63. The ranges of dyestuffs marketed as "Telon" lightfast and as "Telon" fast dyes are discussed in respect of their properties and appropriate dyeing procedure. It is stated that they offer a solution to variation in dyeing affinity between wool and polyamide fibres. C—4I.

Aspects of Acetate Rayon Dyeing—2. Anon. *Silk & Rayon Rec.*, 1951, 25, No. 2, pp. 271-272. The improvement of the dyeing properties of cellulose acetate rayon by hydrolysis of some of the acetyl groups is discussed. Two methods of achieving this are mentioned: the ripening of the acetylated cellulose in alkaline conditions, and the jigger scouring and bleaching of the woven fabric before dyeing. The printing and dyeing of fabrics containing mixtures of cellulose acetate rayon and other fibres is considered. C—4I.

The Dyeing of Mixtures Containing Rayon Staple. Part I. C. P. Tattersfield. *Brit. Rayon & Silk J.*, 1951, 27, January, pp. 61-62. In this, the first of a series of articles, the author deals with the dyeing of wool/viscose rayon blends. The types of process in which one fibre is dyed and one reserved, and the dyeing of both fibres to solid shades, are briefly considered. C—4I.

Logwood and Its Applications. Part V. O. Newsome. *Dyer*, 1951, 105, No. 5, pp. 285-287. Further information* on the use of logwood as a textile dyestuff covers its application to (1) cotton and linen, (2) jute and coir fibre, (3) horse hair, and (4) Ardil-wool mixtures, and (5) printing. (*For part IV see *J. Textile Institute*, 1951, 42, A306.) C—4I.

Notes on Silk Dyeing: Part I. A. G. Tyler. *Brit. Rayon & Silk J.*, 1951, 27, January, pp. 57-59. The acid dyeing of hard silk (silk not degummed) and souple silk (partly degummed silk) is discussed. C—4I.

Recent Progress in the Processing of Rayon and Synthetic Fibres. George T. Douglas. *Text. Rec.*, 1951, 68, January, pp. 93-94. The following are discussed briefly: developments in cellulose acetate rayon dyeing (including vat dyeing), "gas fume" protection agents, the "Standfast" process for continuous vat dyeing, and the high temperature dyeing of synthetic fibres. C—4I.

The Relating of Laboratory Data to Mill Practice. H. F. Clapham. *Amer. Dyest. Rep.*, 1951, 40, No. 3, pp. P84-90. A method is described for obtaining exhaustion rates for dyestuffs either singly or in combination. Details are given of both a single- and a multi-unit apparatus which can be easily set up in a textile mill. The method has been used to study the sorption and desorption of acid dyes on wool, the dyeing of metallised acid dyestuffs on wool, of acid dyestuffs on bright filament nylon, and of acid dyes on spun-nylon yarn. Dyeing curves are presented showing the effects of agitation, temperature, and sodium sulphate on the rate of dyeing. Figures showing the rates of dyeing of many dyes are given in appendices (*ibid*, pp. P91-100) for the above mentioned cases. It is shown how the apparatus can be used to parallel closely the exhaustion curves obtained in the mill practice. C—41.

Solving a Dye Net Problem. Alfred Carpenter. *Text. Rec.*, 1951, 68, January, p. 105. The dyeing of lightweight silk and rayon hose in dye nets is briefly discussed, and a system of "loading" the net bags is suggested to give maximum control and best results. C—41.

Spectrophotometric Studies of Continuous Dyeing. Frederick T. Simon. *Amer. Dyest. Rep.*, 1951, 40, No. 3, pp. P101-104. The use of the spectrophotometer in measuring the concentration of dyestuffs during continuous dyeing processes is discussed. Three cases are considered: one vat dye, a mixture of two vat dyes, and a mixture of three direct dyes. In each case the method of measurement is simple and applicable to mill practice. C—41.

Synthetic Fibres: Recent Information on Properties and Processing. Anon. *Brit. Rayon & Silk J.*, 1951, 27, January, pp. 52-54. Practical suggestions for pleating nylon fabrics are summarised, and some information on the properties and processing of Dynel and Terylene fibres is given. C—41.

Application of Vat Dyes to Nylon at Normal Temperatures. Thomas Carter, James L. Neal and R. Neal Westmoreland. *Amer. Dyest. Rept.*, 1950, 39, No. 23, pp. 773-776. The authors found that by pre-treating nylon at 190° F. in a 1 to 5 per cent. solution of tannic acid, greatly improved dyeing results were obtained with vat colours, at temperatures of only 120-140° F. The results of experiments with this method showed better fastness to light and washing, better colour yields, improvement of the range of colours by the inclusion of dyes which show little affinity for untreated nylon, and production of more uniform shades in nylon mixture fabrics. C—41.

Dyeing of Clothing. Karl Wojatschek. *Textil-Praxis*, 1951, 6, No. 2, pp. 133-137. In German. The preparation of clothing for dyeing, and procedures for obtaining good results on dyeing, are discussed in some detail. C—41.

Dyeing, Printing, and Finishing of Cotton and Man-Made Fibres. *Papers Second Canad. Text. Seminar*, 1950, pp. 135-170. The papers in this section of the second Canadian Textile Seminar deal with (1) the application of pigments in a textile print works, (2) dyeing and finishing of cellulose-acetate warp-knitted fabrics, (3) trends in dyeing and finishing machinery, (4) properties of starches and dextrines, (5) package dyeing with particular reference to Barber-Colman cheeses, (6) principles of textile finishing, and (7) fast shades on nylon textiles. C—41.

Fabric Construction and Finishing. W. Best-Gordon. *Text. Merc.*, 1951, 124, No. 3233, pp. 489, 491. This is a report of a lecture on fabric structure in relation to textile finishing. Six systems of spinning (cotton, silk, worsted, flax, jute, and woollen) are outlined and the finishing of three groups of rayon fabrics as classified by the dyer and finisher (flat fabrics, crêpe fabrics, and rayon staple fabrics) is briefly discussed. C—41.

Fifty Years in the Textile Industry. C. M. Whittaker. *Dyer*, 1951, 105, No. 6, pp. 353-355. This is a report of the third Samuel Courtauld lecture, in which the lecturer described some of his experiences during his fifty years in the dye making and dyeing industries. C—41.

"Immedial" Dyestuffs for Textile Printing: Fringe-Free Discharge. Hans Engelmann. *Textil-Praxis*, 1950, 5, No. 6, pp. 365-366. In German. "Immedial" Printing Black B paste and Printing Blue RR paste do not give rise to the fine white fringes which so often occur when indanthrene vat dyes are discharged in

printing. Formulations which have been tried out in practice are given, together with two specimen prints. C—4I.

Light-fastness and Chemical Constitution of Chlorantin Dyestuffs. R. Gunst. *Ciba-Rundschau*, 1950 No. 91, June, pp. 3379-3382. The direct-dyeing Chlorantin dyestuffs are particularly fast to light, especially when applied to cellulosic material. The author discusses the historical development of these colours, and their structure. C—4I.

Continuous Dyeing of Nylon Fabrics. W. George Parks, Edward W. Lawrence, *et al.* *Amer. Dyest. Rep.*, 1951, 40, No. 1, pp. P14-P29, P32. This paper was prepared by the Rhode Island Section of the American Association of Textile Chemists and Colorists. It is stated that dyeing of nylon takes place in two stages: first, the absorption of the dye without chemical bonding; and second, diffusion into the fibre, which enables chemical bonding to take place. It is possible to dye nylon by padding dissolved acid dyestuff, and then steaming in conventional vat-dyeing equipment. Tabulated spectrophotometric data give colour value, wash fastness, result of varying the steaming time, and influence of acids or assistants, and of heat treatments. Common dyeing problems are discussed from data obtained during plant dyeings. There are eighteen references. C—4I.

The Dyeing of Acetate Rayon with Vat, Acid, and Direct Colours. R. F. York. *Dyer*, 1951, 105, No. 7, pp. 442-445, 447. The effect of cyclohexylamine in the dyeing of cellulose acetate rayon is described, and it is shown how dyeing can be done economically with dyestuffs which normally have no affinity for that fibre. Experiments with vat, acid, and direct dyes are described, and data and results are given, including dyeing effects and strength tests on cellulose acetate yarns and fabrics. C—4I.

Dyeing of New Synthetic Fibres. Paul L. Meunier (du Pont de Nemours). *Amer. Dyest. Rep.*, 1951, 40, No. 2, pp. P51-P54. The article deals with the dyeing of Orlon acrylic fibre and Fibre V (Dacron). The general characteristics of these fibres, and the types of clothing for which they will probably be most useful, are mentioned. The dyeing of staple and continuous filament Orlon is discussed, and reference is made to recent success in the production of fast black shades on Orlon fabrics, in the dyeing of these fabrics with soluble vat colours, and insoluble vat colours in the form of vat acids, and in the colouring of Orlon fibre, yarn and sewing thread under pressure at high temperatures. A typical procedure is given for dyeing a full black shade on Orlon sewing thread. Orlon staple fibre can be dyed with dispersed acetate dyes, with acid and chrome colours applied with sulphuric acid, with soluble vat dyes, and with insoluble vat colours of the thioindigoid type and a few of the anthraquinone type. Fibre V is dyed by aqueous dyeing with carriers at temperatures near the boil, by aqueous pressure dyeing at temperatures above 212° F., and by Thermosol dyeing (see *Summary*, 1949, p. 404), which involves heat treatment, and in which vat pigments can be used in mixtures with acetate dyes. A list of colours suitable for Fibre V is given. In some cases Fibre V dyeings have resisted exposure to Florida sunlight better than exposure to the Fadeometer. C—4I.

Dyeing of Wool/Polyamide Fibre Mixtures with Acid Dyes. W. Hees. *Melliand Textilber.*, 1950, 31, No. 7, pp. 496-500. In German. The improvements in mechanical properties of wool yarns (strength, wear, *etc.*) obtained by the addition of, say, 25 per cent. nylon fibre, are outlined. The increasing demand for such mixtures has necessitated an investigation into the comparative dyeing characteristics of nylon and wool, since their absorption of acid dyes usually differs. A study of dyeing conditions has led to the development of suitable processes for treating the mixtures. It has also been found possible to establish a relationship between the chemical structure of those acid dyestuffs, of various types, which dye intimate mixtures of wool and nylon to the same depth of shade. C—4I.

Levogen WW. Otto Weber. *Melliand Textilber.*, 1950, 31, No. 7, pp. 494-496. In German. Levogen WW is the latest of a series of high-polymer substances produced by the Bayer concern for securing increased fastness to water, washing, perspiration, cross dyeing, and ironing, of substantive dyestuffs on wool, cotton, rayon, and unions. It is cationic and combines with dyestuff solubilising sulphonic acid groups to form much less soluble salts or lakes. Normally applied in a separate bath after dyeing, it can also be used with great effect in discharge printing and sizing (for prevention of bleeding). Details are given of methods of application. C—4I.

Time and Temperature Control: Two Important Factors in Dyeing. H. G. Olson (Taylor Instrument Companies). *Amer. Dyest. Rep.*, 1951, **40**, No. 1, pp. 6-8. The author discusses the type of automatic dyeing-control suitable for different types of production, and describes some control systems and the method of operating them. There are five photographs. C—**4I.**

Vat Colour Ageing Calls for Strict Control. T. N. Patrick. *Text. World*, 1951, **101**, No. 3, pp. 141, 143. The author discusses some troubles which can occur during the passage of cloth, printed with vat colours, through the steam ageing chamber, and suggests remedies. C—**4I.**

(J)—PRINTING

Accidents in the Printworks. Anon. *Text. Rec.*, 1951, **68**, January, pp. 102-104. In order to indicate sources of danger in the printworks a number of actual accidents are described. C—**4J.**

Some Considerations in the Colouring of Textile Prints. Anon. *Text. Rec.*, 1951, **68**, February, pp. 104-106. Precautions to be taken in the preparation of print pastes for the silk screen, hand block, and roller methods of printing are discussed. Some problems which arise as a result of faults in the printing paste are briefly dealt with. C—**4J.**

Anthrasol Dyestuffs: Application in Textile Printing. H. Lotz. *Textil-Praxis*, 1950, **5**, No. 6, 371-375. In German. *Textil-Praxis, (Eng. Span. Edn)*, 1950, 31; (Reprint in *Text. J. Australia*, 1950, **25**, No. 9, pp. 916-925 (6 pages). The anthrasol dyestuffs are water soluble leuco vat dyestuffs which are stabilised by sulphuric ester groups; saponification with oxidation yields the insoluble vat dyestuff. About forty individual dyestuffs, with a complete range of shades, are available. Two main processes for the application of these colours are available, namely, the nitrite and chlorate methods. Printing procedures of various types are discussed, and include direct printing (block and screen), and resist printing. C—**4J.**

Stabilising Azoic Printing Problems. Anon. *Text. Mfr.*, 1951, **77**, February, pp. 91-93. The advantages of stabilised azoic colours for printing, and problems in their applications, are discussed. C—**4J.**

Nylon Dyeing—Theory and Practice. G. T. Douglas (Imperial Chemical Industries). *Amer. Dyest. Rep.*, 1951, **40**, No. 4, pp. P122-P126. The theory of the dyeing of nylon is presented in a relatively simplified form, and the part that the chemical groupings in nylon play in dyestuff uptake is discussed. The dyeing behaviour of nylon is compared and contrasted with that of wool. The value and limitations of the various dyestuff ranges for nylon are outlined, and some of the difficulties that are met in practice in the dyeing of this fibre are dealt with. A chrome dyeing technique developed as a result of the fundamental researches into the dyeing mechanism of water-soluble dyestuffs on nylon is given, and the dyeing behaviour of vat and azoic dyestuffs is discussed. Finally, the problems involved in the colouration of wool/nylon union materials are stated and recommendations are presented for the dyeing techniques to be employed. (From author's summary.) C—**4J.**

Studies in Textile Printing: Practical Applications of the Analytical Method. R. D. Greene, A. F. Klein and F. Fordemwalt. *Amer. Dyest. Rep.*, 1951, **40**, No. 4, pp. P127-P130. In the method described, three measurements of a vat print are made: the amount of dye deposited by printing, the amount remaining on the fabric after ageing, oxidising and soaping, and the colour value of the completed print. From these are calculated the Percentage Fixation (PF), which is the relation between the amount of dye deposited on the fabric by printing and the amount remaining after ageing, oxidising and soaping; Colour Efficiency (CE), the relation between the amount of dye fixed and the colour value obtained, which shows the true comparative effect which results from differences in dye distribution, penetration, *etc.*; and Printing Efficiency (PE), the relation between the colour value obtained and the amount of dye deposited, which shows the real relative money value of the whole process. This method has been applied to the study of vat gums, pigment-pad-steam vat printing, screen printing, and to comparisons between laboratory and mill agers. The method has been shown to be useful in evaluating printing processes that could not be compared by the usual testing procedures, which depend on colour values alone. C—**4J.**

(K)—FINISHING

Finishing of Bemberg "Lavabel". ("Ausrüstung von Lavabel.") —. von Klenck and Otto Müller. *Textil-Praxis*, 1951, **6**, No. 1, pp. 63-66. It is stated that experience has shown the best crêping effects are to be obtained by treatment in a strong lye bath rather than by inserting high twist in the yarn. Details of the alkali treatment are given. Other processes discussed are bleaching with chlorite, dyeing, and printing, and the auxiliaries required by these and other finishing processes, such as imparting a good handle. C—4K.

The Finisher and Textile Quality. J. G. Evans. *Text. Merc.*, 1951, **124**, No. 3231. pp. 408, 411; No. 3232, pp. 455, 457. The production of quality work by the finisher is considered from the aspects of (*a*) preparation, *e.g.* removal of stains and impurities, (*b*) dyeing and printing, and (*c*) finishing (with special reference to the application of synthetic resins, and shrinkage control). C—4K.

The Effect of Raw Material, and Spinning and Weaving Faults, on Finishing. H. Rath. *Textil-Praxis*, 1950, **6**, No. 2, pp. 130-133. In German. The paper is limited to discussing the occurrence of streaks or bands in finished fabrics, particularly in the case of rayon fabrics. Conditions which must be observed in order to avoid the incidence of such defects are put forward, and may be summarised as maintaining consistency in the raw materials, yarn, fabric, treatment, and removal of auxiliary agents. The various processes are briefly examined with this objective in view, and means of overcoming the effect of minor irregularities are suggested. C—4K.

Ethyleneimine: Application to Animalisation and Permanent Finishing of Cellulosic Materials. W. Wigman. *Mededeel. Vezelinstituut T.N.O.*, 1947, No. 83, 40 pages (through *Chem. Abstr.*, 1950, **44**, No. 20, p. 9679[h]). This paper reviews patents (mainly of I.G. Farbenindustrie) relating to the preparation and use of ethyleneimine and its derivatives for modifying the dyeing properties, the fastness, and the mechanical properties of cellulose fibres. The most promising compounds are *N, N'*-ethyleneureas, obtained by interaction of ethyleneimine with mono- or dicarbamides, with a *N*-chloroamide of a fatty acid, or with cyanuric chloride. Condensation products of ethyleneimine with compounds containing active halogens or carbonyl groups, with acids and esters, with sulphur compounds such as carbon disulphide, and with other compounds, are described. Mention is also made of the treatment of protein and synthetic fibres, and of the production of synthetic resins from ethyleneimine derivatives. There are 91 references. C—4K.

Finishing Processes: Automatic Control. Leo Walter. *Text. Mfr.*, 1951, **77** January, 34-39; February, pp. 86-90; March, pp. 136-139. The three parts of this series deal respectively with (1) the automatic control of wool scouring (loose wool, yarn, and piece goods), bleaching, *pH*, drying, and stentering; (2) sizing and drying operations and problems; and (3) the control of the dyeing of raw wool and piece goods, and of mercerising processes. C—4K.

Improvement of the Quality of Cellulose Fibres and Wool by Treatment with Synthetic Resins. L. T. Muus. *Tids. Textiltek.*, 1950, **2**, pp. 13-26 (through *Chem. Abstr.*, 1950, **44**, No. 12, p. 5589[d]). The article reviews the methods for the improving of cellulosic materials by means of urea-formaldehyde and melamine-formaldehyde resins, and of wool by silicones and melamine-formaldehyde resin. The anhydrocarboxyglycine method is also discussed. There are forty-two references. C—4K.

Stabilisation of Neutral Hypochlorite-Oxidised Cotton Fibre. Richard E. Reeves and Julius R. Jung. *Text. Res. J.*, 1951, **21**, No. 1, pp. 22-25. It has been found that if cotton fibre oxidised with neutral hypochlorite solution is treated with ethereal diazomethane, it suffers less damage on exposure to aqueous alkali than if left untreated. This is shown by lower aklali solubility, lower cuprammonium fluidity, and greater strength of the oxidised and diazomethane-treated fibre as compared with the same properties of the untreated oxidised fibre. C—4K.

Studies on the Improvement of Silk. I. Composition of Tannin-Chrome Compound Used for Treatment of Silk. Ichiro Ikoma. *J. Soc. Textile Cellulose Ind. Japan*, 1946, **2**, pp. 76-8 (through *Chem. Abstr.*, 1950, **44**, No. 12, p. 5596[e]). Silk from a tannin-chrome bath absorbed tannic acid and chrome, regardless of the composition of the bath, to a ratio which agrees with the composition of the tannin-chrome compound calculated from the basic molecular weight of galloyl

tetragalloylglucose postulated by Fischer, Bergman and Freunrenberg. The treated silk is sun-resistant. C—4K.

Trends of the Textile Industry. Hector C. Borghetty. *Amer. Dyest. Rep.*, 1950, **39**, No. 23, pp. 777-781 and 786. The article discusses new fibres, methods of modifying the properties of old fibres (resin finishes, shrinkage control, direct-dye fixatives, and acid-fading inhibitors), continuous textile processing procedures, and avoidance of the difficulties occasioned by hard water and the use of detergents. C—4K.

Features of the Scholaert Raising Machine. Albert C. Scholaert. *Text. Mfr*, 1951, **77**, February, p. 77. C—4K.

A Method of Setting Tricot Fabrics. L. Leslie Walmsley (American Viscose Corporation). *Amer. Dyest. Rep.*, 1950, **39**, No. 26, pp. P913-915. This article describes a machine for pre-setting cellulose acetate tricot. In the United States, this fabric is normally tacked at its edges to prevent tight rolling during the dyeing process. The new machine not only reduces shrinkage from a range of 4-14 per cent. to a range of 0-4 per cent., but eliminates the need for this costly tacking operation. A speed of 40 yards a minute is thought to be possible with this machine, although it is pointed out that complete success with it may not be attainable until a thorough knowledge of the process and experience with the machine have been acquired. A full description of the machine and its operation is given, and some observations are made on the type of tests suitable for finished tricot fabrics. The author also comments on the backwardness of the dyeing and finishing side of the knitted goods industry, compared with the remarkable advances that have been made in woven goods. C—4K.

Modern Leathercloth Machinery. Klaus Stockhert. *Melliand Textilber.*, 1950, **31**, No. 7, pp. 501-502. In German. Modern trends in leathercloth spreading and fusing machines are surveyed. C—4K.

New Finish for Cotton and Rayon. E. I. du Pont de Nemours & Co., Inc. *Text. Merc.*, 1951, **124**, No. 3236, pp. 624, 627. A new textile finish is announced which, it is claimed, imparts a durable wrinkle- and shrink-resistance to cotton and viscose rayon fabrics. This product has been named "Zeset", and it is stated that its use eliminates many of the difficulties hitherto associated with the application of crease resistant finishes. C—4K.

(L)—PROOFING

New Fire Resistant Finish. American Cyanamid Company (Richard E. Sumner). *Rayon Synth. Text.*, 1950, **31**, No. 12, p. 53. This report of a press conference refers to a new fire retardant treatment called Pyroset, a resin finish for fabrics which gave excellent results in the flame test. This treatment is of the permanent type, and does not have to be renewed whenever the material is cleaned. C—4L.

Zirconium Chemicals: Their Application to Textiles. Part I. Warren B. Blumenthal. *Rayon Synth. Text.*, 1950, **31**, No. 12, pp. 81-83. The author describes the theory and practice of current applications of zirconium compounds in conferring water-repellency, mordanting, fire-proofing and silk-weighting. He suggests that further studies might lead to zirconium treatment for improving lustre and strength of textiles, and their resistance to wear, creasing, shrinking, and bacterial and fungus attack. Subsequent articles will deal with water-repellency (in more detail), and hygienic aspects of zirconium treatment of textiles. C—4L.

Zirconium Chemicals: Part II. Their Use in Water Repellent Treatment of Textiles. Warren B. Blumenthal. *Rayon Synth. Text.*, 1951, **32**, No. 1, pp. 85-86, 88. After illustrating the water-repellent properties of various materials treated with zirconium compounds, the author enumerates some practical applications of this form of proofing. Two classes of treatment—impregnation of the fabric with resinous substances, and deposition of non-resinous hydrophobic films—are briefly considered. Finally the technology of the application of zirconium water-repellent finishes is discussed. C—4L.

Research into Rotting of Textile Fibres—2. R. W. Moncrieff. *Silk & Rayon Rec.*, 1951, **25**, No. 2, pp. 274-276. The rotproofing of textile fibres by means of acetylation is discussed, and processes for the acetylation of cotton by the action of ketene are described. Mention is also made of the use of synthetic fibres

immune to attack by moulds and bacteria, and rotproofing by application of copper salts. (For part 1, see *J. Textile Institute*, 1951, 42, A235.) C—4L.

Zirconium Compounds and Water-Repellency. National Lead Co. *Fibres*, 1950, 11, No. 10, p. 365. The article refers to British Patent 28,829/1949 filed by the company (see also Abstract C.1951/1427-8 [of *Rayon & Synth. Textiles* (Blumenthal) 1950, 31, No. 12, p. 81.]), relating to improvements in inducing water repellency in fibrous materials. The improvement is due to ammonium dicarbonate zirconylate $(NH_4)_2ZrO(CO_3)_2$, which binds a water-repellent material to the cloth in the form of a thin film. Cloths treated in this manner will withstand four to eight soap launderings, and six dry-cleaning treatments, as against the performance of cloths made water-repellent without zirconium treatment, which will not withstand more than one or two launderings, and lose much of their water-repellence after only one dry-cleaning. C—4L.

Fireproofing Finishes: Detection in Fabrics and Tests of Efficiency. Herbert M. Ulrich. *Textil-Rundschau*, 1951, 6, No. 2, pp. 45-53. In German. A survey is made of the various general methods of securing fire-resistance in a fabric, for example, coating the fibre with insoluble fireproof pigments which tend to "mineralise" the fibre; coating with substances which vaporise on heating, thus tending to "choke" the fire; impregnation with substances which melt readily and enclose the fibre in a glass-like casing; impregnation with synthetic resins; and incorporation of asbestos. The effect of these processes on the properties of the fibres, and their permanence, are briefly discussed. Procedures are described for detecting the presence and type of fire-proofing finish in a fabric, and for assessing their value. C—4L.

Flameproofing Finish for Nylon. R. C. Axtmann and A. T. Sweet. *Text. World*, 1951, 101, No. 3, pp. 130, 216. The article describes the preparation, and application to nylon, of a new thiourea-formaldehyde fire-retardant resin. This finish is fast to washing and has no appreciable tendering effect. C—4L.

Rigid Boxes and Cartons. Anglo-American Council on Productivity. *Productivity Team Report*, 1951, February, 38 pages. This report on a visit made to the U.S.A. in 1950 is divided into the following sections: general survey, folding cartons, rigid boxes, round boxes, and recommendations. Six appendices cover: lists of visits in the U.S.A.; specimen agreement between an American company and a local union; constitution for the recommended Works Committees; a special attachment for partial stripping of cartons or blanks while they pass through the press; the Blatchford bases, which give speed in lock-up and changing a set of plates; and production graphs from one of the plants visited. The introduction comments on high productivity in the U.S.A., diet and energy, shopping facilities for married workers, taxation, good management-labour relations, incentive schemes, welfare, safety, production, and administration. C—4M.

PATENTS

Chlorine Dioxide: Preparation. Mo och Domsjo Akt. B.P.639,085: Appl. and filing 9/1/1948; Publ. 21/6/1950; Swedish appl. 14/1/1947. The aim of the invention is to secure a high yield of chlorine dioxide according to the equation $2\,NaClO_3 + SO_2 = 2\,ClO_2 + Na_2SO_4$. The chlorate solution is saturated with the sulphate so that the latter crystallises out as the reaction proceeds, and fresh chlorate is continuously supplied to maintain its concentration in the solution. Chlorates of K, NH_4, Ca or Mg may also be used. C.

Vinyl Chloride/Acrylonitrile Copolymer Textiles: Dyeing. Carbide and Carbon Chemicals Corporation (assignees of T. A. Feild and A. G. Schoonover). B.P. 639,160: Appl. and filing 29/10/1947; Publ. 21/6/1950; U.S.A. appl. 30/10/1946. In a process for dyeing textile fibres, yarns, fabrics or knitwear made from vinyl chloride/acrylonitrile co-polymers, the material is impregnated with the boiling dye liquor and then heated with water or steam under pressure (up to 20 lb. gauge) at 105-150° C. (the lower the higher the pressure). The second stage may be effected by raising the temperature and pressure of the dyebath or by exposing the goods to superheated steam. Seven examples are given, together with a list of suitable acid, direct, basic and phthalic anhydride type dyes. C.

Cellulose Acetate Textiles: Dyeing and Printing with Vat Dyes. T. E. Marchington and Co. Ltd., G. D. Sutton and Orlando Boothby. B.P.639,161: Appl. 30/10/1947; Filing 29/10/1948; Publ. 21/6/1950. The invention relates to

means for colouring cellulose acetate textiles by vat dyes without partial saponification or the use of swelling agents. The dye liquor or printing paste contains a sulphoxylic reducing agent and a mild alkali (*e.g.* sodium sulphite) to regulate the *pH* value. Fifteen examples are given, including the dyeing or printing of mixtures of cellulose acetate and viscose yarns to the same shade on both types. C.

Pigment Pastes for Textile Colouration. G. T. Douglas, Arthur Lowe, Sydney Robinson and Imperial Chemical Industries Ltd. (1) B.P.639,207: Appl. 21/4/1947 and 21/1/1948; Filing 21/4/1948; Publ. 21/6/1950. (2) B.P.639,294: Appl. 18/2/1948; Filing 16/2/1949; Publ. 28/6/1950. (1) A process for the colouration of textiles employs an aqueous paste comprising a suspension of polyvinyl chloride or a rubber, a pigment and a compound of the formula $R(O{\cdot}CO{\cdot}NH{\cdot}CH_2{\cdot}A{\cdot}X)_n$ where R is an organic residue, A is the group of atoms included in an aliphatic or heterocyclic tertiary amine, X is the anion of an acid and *n* is 2 or more. The first of 19 examples refers to tristearin tris-(carbamatomethylpyridinium) trichloride. (2) The compounds used are of the general formula $(OH{\cdot}CH_2{\cdot}NH{\cdot}CO{\cdot}O)_p\ R(O{\cdot}CO{\cdot}NH{\cdot}CH_2{\cdot}A{\cdot}X)_m$ where *m* is preferably unity. Eight examples are given in detail. C.

Chlorite Bleach Liquors: Activation. Solvay & Cie. B.P.639,235: Appl. and filing 19/11/1947; Publ. 21/6/1950; Belgian appl. 20/12/1946. Oxidation by chlorite solutions is activated by the introduction of a small amount of a finely divided solid element of Group V or VI, especially sulphur. The element may be liberated from a suitable compound by the chlorite and it is an advantage if an acid is generated at the same time. The principal agents referred to in the examples are sodium thiosulphate and ammonium thiocyanate. C.

Acylated 1-Hydroxy-8 (or 5) -amino-anthraquinone Dyes for Cellulose Acetate and Nylon. Ciba Ltd. (1) B.P.639,223, (2) B.P.639,250: Appl. and Filing 6/8/1947; Publ. 21/6/1950; Swiss appl. 7/8/1946 and 13/6/1947. The inventions relate to dyes for cellulose acetate and nylon that are obtained by the acylation, by conventional methods, of 1-hydroxy-8 (or 5) -amino-anthraquinone. The examples refer to acetyl, propionyl, butyryl and other derivatives up to oleyl and stearyl. C.

Free-shrinkage Cloth Drying Machine. Julien Dungler. B.P.639,263: Appl. and filing 15/5/1947; Publ. 28/6/1950; French appl. 22/5/1946 and 21/2/1947. The claim is for a machine for drying cloth freely by means of hot air directed to both faces of the cloth through two series of telescopic nozzles that can be adjusted to a range of cloth widths. The cloth is conveyed between the upper and lower banks of nozzles either (*a*) between two travelling bands of metallic gauze or of parallel cords or (*b*) by means of driven rollers located in the dead spaces between the nozzles. As shown, in each space two rollers are provided beneath the travelling cloth and one above it. C.

Alkyl-mercapto-aminohydroxyanthraquinones: Application in Colouring Cellulose Esters and Ethers. British Celanese Ltd. (for Celanese Corporation of America). B.P.639,266: Appl. 31/7/1947; Filing 30/7/1948; Publ. 28/6/1950. The claim is for cellulose ester or ether filaments or foils coloured red by dyeing with or addition to the spinning mass of 1-amino (or 1-alkylamino)-4-hydroxyanthraquinones having an alkylated mercapto group in position 2. The examples are 2-hydroxyethylmercapto-2-methylmercapto and 2-laurylmercapto derivatives of 1-amino-4-hydroxyanthraquinone. The coloured materials are fast to light and to gas fumes. C.

Stenter Clip. Julien Dungler. B.P.639,398: Appl. and filing 6/11/1946; Publ. 28/6/1950; French appl. 24/11/1945. The base plate of a stenter clip is formed of a grid of parallel, convex bars perpendicular to the selvedge of the cloth and the clipping jaw is provided with fins that urge the cloth into the spaces between the bars. The drying medium thus has access to the selvedges. C.

Embedded Cut Pile Fabric Producing Machine. V. A. Victor. B.P.639,482: Appl. and filing 29/9/1947; Publ. 28/6/1950; U.S.A. appl. 16/9/1944. The claim is for an intermittently rotating "drum" for producing pile fabric by feeding a flexible backing coated with adhesive to a pile forming station at which a number of pairs of jaws carried by the drum grip cut ends of yarn,

received from a station where a supply of yarns is fed to a severing device, and embed them vertically in the adhesive. The details are shown in six sheets of machine drawings. C.

Blue Water-soluble Dyes: Production. Clifford Wood and Imperial Chemical Industries Ltd. B.P.639,487: Appl. 21/1/1948; Filing 19/1/1949; Publ. 28/6/1950. Soluble dyes are obtained by heating a dye that contains one or more tetramethylisothiouronium salt groups (*e.g.* the phthalocyanines) with dimethyl or diethyl sulphonate or methyl or ethyl *p*-toluenesulphonate. The new dyes are bright blue and compatible with the stabilised components for giving yellow azo dyes, so that they can be used to give very fast green prints. C.

Continuous-traverse Open-width Dyeing Machine. Julien Dungler. B.P.639,564: Appl. and filing 21/4/1947; Publ. 28/6/1950; French appl. 30/4/1946. The claim is for a machine in which fabric can be given a wet treatment (especially dyeing) without rolling it up on rollers and changing the direction of travel as in the usual dye jig. The fabric is fed over opening-out rollers, then over guide rollers in a vat, through squeeze rollers and then to a "receiver" where it accumulates in loose folds. From this unit it passes around guide rods or rollers to a roller (A) adjustably mounted between vertical guides. The fabric is run until the two ends can be stitched together, whereupon the slack at the front end is taken up by raising roller (A) by means of a hand-driven chain and sprocket device and the process is then continued until the treatment (dyeing) is complete. The stitching is then undone and the fabric is wound up on a roller. C.

Blue Anthraquinone Dyes: Production. British Celanese Ltd. B.P.639,587: Appl. and filing 11/8/1947; Publ. 28/6/1950; U.S.A. appl. 21/8/1946. Blue dyes that are insoluble in water and give very fast shades on cellulose esters or ethers are obtained by the alkaline hydrolysis (*pH* 8-9; 140-150° C.) of the cyano compounds derived by the action of a cyanide on 1-amino-4-alkylamino-, 1-amino-4-cycloalkylamino-, 1-amino-4-arylamino- or 1-amino-4-aralkylamino-anthraquinone-2-sulphonic acids. C.

Suction Dryer for Piece Goods. Richmond Piece Dye Works, Inc. B.P.639,786: Appl. and filing 10/7/1947; Publ. 5/7/1950; U.S.A. appl. 21/2/1946. A stationary suction duct is provided within a perforated drying cylinder so as to define in its upper portion a longitudinal, narrow inlet slot where the cloth makes contact. Compared with suction chests having wide openings the extraction efficiency is increased by about 40 per cent. or the rate of travel of the cloth is about doubled. C.

Copperable Polyazo Dyes: Production. J. R. Geigy A.G. B.P.639,866: Appl. and filing 1/8/1947; Publ. 5/7/1950; Swiss appl. 2/8/1946. [Addition to B.P. 579,063 and 633,166.] One molecular proportion of a tetrazotised 4:4′-diamino-3:3′dialkoxydiphenyl compound is coupled, in any desired order, on one hand with an amino-azo dye of the general formula

$$(\underset{7}{HO_3S})\cdot(\underset{5}{OH})\cdot C_{10}H_4\cdot(\underset{2}{NHR_1})\cdot\underset{1}{N}:N\cdot C_6H_4\cdot\underset{2'}{COOH}$$

and on the other with a mono-azo dye of the general formula

$$(\underset{7}{HO_3S})(\underset{5}{OH})\cdot C_{10}H_4(\underset{2}{NHR_2})\cdot\underset{1}{N}:N\cdot B$$

where B is a substituted aromatic radical, or with a suitable phenolic coupling component. The tabulated examples refer to navy blue and black after-coppered dyeings. C.

Cellulose Acetate Staple Fibre Fabrics: Dyeing with Alcoholic Solutions. British Celanese Ltd. (for Celanese Corporation of America). B.P.639,885: Appl. 15/12/1947; Filing 14/12/1948; Publ. 5/7/1950. In the dyeing of cellulose acetate fabrics by means of aqueous-alcoholic solutions of anthraquinone dyes mottled effects are sometimes encountered if the fabric surface presents many cut ends of filaments, *e.g.* if the yarns are spun from staple fibre, the cut ends dyeing a darker shade than the remainder. This drawback is overcome by increasing the concentration of alcohol (C_1 to C_5) to at least 94 per cent. [In the older process, the alcoholic solution may include a thiocyanate. The example given of the new method does not mention such an addition.] C.

Heat-stable Nylon Fabrics and Films: Production by Use of Hypophosphites. Imperial Chemical Industries Ltd. B.P.639,893: Appl. and filing 30/12/1947;

Publ. 5/7/1950; U.S.A. appl. 30/12/1946. The weakening and discolouration that sometimes occur when nylon materials are "heat set" are avoided by the incorporation of a minor amount of hypophosphorous acid or one of its salts (K, Na, Ca, Mg, Ba, NH_4), or an alkyl or aryl derivative of phosphinic acid [R·PH(:O)·OH]. The first of nine examples refers to the treatment of nylon taffeta in a per cent. solution of Na hypophosphite. C.

Relief Printing Device for Fine Silk Fabrics. John Forshaw. B.P.640,103: Appl. 26/1/1948; Filing 15/12/1948; Publ. 12/7/1950. Apparatus for printing a fine silk fabric from a series of relief printing plates comprises means for holding the fabric under tension in both directions, bringing the series of inked plates parallel to the fabric and slightly spaced therefrom, and holding them stationary during the printing operation. C.

Photographic Diazotype Prints on Cloth: Production. John Holden. B.P. 640,308: Appl. 9/1/1948; Filing 4/2/1949; Publ. 19/7/1950. The claim is for the temporary stiffening of the fabric with starch, glue or methylcellulose in a process of printing on cloth treated with a photo-sensitive diazo compound. C.

Chlorite Bleach Liquors: Activation. Solvay & Cie. B.P.640,394: Appl. and filing 29/10/1947; Publ. 19/7/1950; Belgian appl. 18/11/1946. A chlorite bleach liquor is activated by "providing a regulatable contact" with a multivalent metal such as chromium, iron, cobalt, nickel, copper, manganese or an alloy or an insoluble compound of such metals. Thus, cobalt oxide is added and if the vessel is made of an activating metal (for example, stainless chrome steel) it is depolarised by electrically connecting it to an aluminium plate immersed in the liquor, so as to regulate the activation and avoid corrosion. C.

Acid Dyes: Application. Wolsey Ltd., Peter Alexander and D. A. Charman. B.P.640,419: Appl. 17/3/1948; Filing 5/4/1949; Publ. 19/7/1950. A process for dyeing wool, nylon or cotton materials comprises immersion for a short time at temperatures below 50° C. in a liquor containing a surface-active dye, removing the material before the bath is exhausted, removing excess dye liquor, and fixing the dye by drying or exposure to water vapour or steam at 90°-140° C. The material may be charged positively by treatment with a cationic surface-active agent, and an electrolyte (for example, ammonium acetate) may be added to the bath. Examples relate to the dyeing of wool, nylon, and cotton with Carbolan dyes. C.

Non-Substantive Nylon Materials: Production by Means of Thiophenols. Sandoz Ltd. B.P.640,421: Appl. and filing 14/4/1948; Publ. 19/7/1950; Swiss appl. 16/4/1947 and 17/3/1948. A process for modifying the dyeing properties of nylon materials so that they are not coloured by substantive, acid, sulphur, chrome or vat dyes, comprises treatment with a hot, alkaline solution of a thiophenol or a reduction product thereof. Fifteen examples are given; they include the production of nylon yarns that are fast to cross-dyeing and printing treatments. The process also renders already dyed nylon fast to washing, acid washing, perspiration and cross-dyeing. Some of the examples illustrate this claim. C.

Cellulose Acetate: Acid Dyeing. American Viscose Corporation. B.P.640,458: Appl. and filing 2/4/1947; Publ. 19/7/1950; U.S.A. appl. 16/4/1946. Cellulose acetate is dyed with an acid dye in a bath containing a lower alcohol (for example, 30 per cent. of ethanol) or an organic acid ester, or an acid that has a swelling effect (for example, 2-3·5 per cent. of sulphuric acid) and also about 1-6 per cent. of resorcinol, phloroglucinol or cyclohexanol. C.

Sample Dyeing Machine. Yorkshire Dyeware and Chemical Co. Ltd. and R. A. Carter. B.P.640,557: Appl. 29/4/1948; Filing 29/4/1949; Publ. 19/7/1950. A machine for the dyeing of small test pieces includes a series of supporting spindles, mounted on wheels carried by a shaft above a series of dye pots, and adapted to be reciprocated both as regards axial displacement and rotation by means of discs eccentrically mounted on a driving shaft. The test pieces thus receive appropriate agitation in the dye liquor. C.

Salted-Out Dyes: Purification. Chadeloid Corporation. B.P.640,915: Appl. and filing 13/2/1947; Publ. 2/8/1950; U.S.A. appl. 7/8/1946. Dyes that have been "salted out" are freed from inorganic matter by (1) forming a saturated solution of the dye in a solvent that also dissolves the salts, (2) removing undissolved solids (if any), (3) adding a "thinner" that precipitates the salts, and

(4) evaporating the clear solution on a drum drier. The examples mention Carbitol, the Cellosolves and furfuryl alcohol as solvents, and mixtures of methanol + toluene, ethanol + benzene and propyl alcohol + xylene, respectively, as "thinners". It is also claimed that water will serve as solvent with alcohol as "thinner". A flow sheet for a continuous process is provided, and includes the solvent recovery steps. C.

Acid Anthraquinone Dyes. Sandoz Ltd. B.P.640,931: Appl. and filing 3/7/1947; Publ. 2/8/1950; Swiss appl. 5/7/1946, 24/7/1946, 13/9/1946 and 9/6/1947. Acid dyes of the anthraquinone series, giving pure blue shades on wool, silk and nylon, are obtained by condensing 2:4-dihalogeno-1-amino-anthraquinones or 4-halogeno-1-aminoanthraquinone-2-sulphonic acids with hydroaromatic amines of the formula $R \cdot NH_2$, where R is the radical of a di- or tri-alkylcyclohexane or of tetra- or deca-hydronaphthalene, and, when there is halogen in position 2, treating the product with alkali sulphite to exchange the halogen for a sulphonic acid group. C.

Crease-Resistant Soft Nylon Fabrics: Production. Imperial Chemical Industries Ltd. B.P.640,960: Appl. and filing 3/12/1947; Publ. 2/8/1950; U.S.A. appl. 3/12/1946. A heat-set nylon fabric made from orientated fibres is impregnated with an acidic catalyst (e.g. oxalic, maleic, *p*-toluenesulphonic or phosphoric acid, or ammonium or calcium chloride) and then exposed to formaldehyde vapour at 130°-150° C., while maintained at fixed dimensions, until the increase in weight is at least 1·5 per cent. The treated fabric is crease-resistant and has a "livelier", softer handle. C.

Open-Width Fabric Wet Treatment Apparatus. Fair Lawn Finishing Co. B.P. 641,172: Appl. and filing 4/7/1947; Publ. 9/8/1950; U.S.A. appl. 27/2/1947. The invention relates to apparatus for the wet treatment of textile fabric in open width, of the type in which a conveying current is established below the surface of the liquid. It allows the fabric to be fed in the relaxed condition, and is said to overcome the formation of permanent creases. The drawings show that the treating liquid impregnates the fabric as it passes over a roller of large diameter rotating over a shallow tank, one end of which is formed as a curved lip which directs the fabric vertically downwards through a slot in a lower tank, the liquid which runs through the slot drawing the fabric with it. The fabric is then conveyed in festoons over rollers in a still lower tank. C.

Swelling-Inhibited Starch: Production. National Starch Products Inc. B.P. 641,222: Appl. and filing 29/8/1946; Publ. 9/8/1950; U.S.A. appl. 29/12/1945. The invention relates to the production of granular ethers of starch which do not gelatinise under the usual conditions, even when alkali is present. The products are suggested for use in salad dressings, puddings and pies, but also as thickeners for textile printing. Fifteen examples of the etherification are given. In some the agent is applied to a dry mixture of starch and alkali, and in the others the reaction is effected in an aqueous-alkaline medium. The agents include epichlorohydrin, glycerol dichlorohydrin, dichloropentane (commercial mixture), propylene dichloride, ethylene dibromide, and 1:4-dichlorobutane. C.

Cloth-Shearing Machine Cutter-Lifting Pedal Mechanism. Zbrojovka Brno, Narodni Podnik. B.P.641,263: Appl. and filing 4/9/1947; Publ. 9/8/1950; Czechoslovak Appl. 5/9/1946. Pedal mechanism for lifting the cutters of a shearing machine is characterised by the provision of a foot-operated lever for locking the cutters in the inoperative position. C.

Benzamidines: Application in Dyeing Cellulose Esters and Ethers. H. C. Olpin and W. B. Miller (British Celanese Ltd.). B.P.641,459: Appl. 23/2/1948; Filing 21/2/1949; Publ. 9/8/1950. The resistance to fading in fumes of burnt gas, of cellulose esters and ethers coloured with anthraquinone dyes that are not otherwise fast, is improved by the incorporation in the dye bath of an acyclic amidine of a carboxylic acid, such as N-phenylbenzamidine. C.

Uniform Nip Pressure Rollers. B. H. Wilsdon, A. J. P. Martin and O. N. Thompson (Wool Industries Research Association). B.P.641,466: Appl. 16/9/1946; Filing 2/12/1947; Publ. 16/8/1950. To secure even distribution of pressure applied by a pair of hard non-flexible rollers, fluid pressure is applied to the internal surfaces of the rollers about their line of contact, either directly, or indirectly through the medium of hydraulic plungers. C.

Polyethylene Compositions: Application in Coating Sheet Materials. Imperial Chemical Industries Ltd. (Inventor: W. E. Frew Gates). B.P.641,568: Appl. 3/12/1947; Filing 3/12/1948; Publ. 16/8/1950. Paper, wood veneers, woven or knitted fabrics and other materials in sheet form are bonded by heat and pressure (90-140° C.) to a film of a polyethylene composition having a viscosity at 190° C. of less than 700 poises. C.

Alkali-Cellulose: Production; Use of Ultrasonic Radiation. American Viscose Corporation. B.P.641,609: Appl. and filing 3/9/1947; Publ. 16/8/1950; U.S.A. appl. 21/8/1946. Alkali-cellulose of uniform composition is obtained by subjecting pulp in contact with alkali solution to high-frequency sound vibrations. C.

Cellulose Acetate Textiles: Vat Dyeing. H. C. Olpin and Tom Jackson (British Celanese Ltd.). B.P.641,835: Appl. 23/2/1948; Filing 21/2/1949; Publ. 23/8/1950. Cellulose ester or ether fabrics are impregnated with a solution, free from discharging agents, of a leuco vat dye in a mixture of water, an organic solvent, urea and ammonium thiocyanate, and then dried and steamed. A typical padding liquid contains methylated spirits 67·5 c.c., water 22·5 c.c., urea 10 g., ammonium thiocyanate 2 g., and Indigosol Golden Yellow IRK 2 g. C.

Cellulose Acetate Yarns and Fabrics: Vat Dyeing. G. D. Sutton and T. E. Marchington & Co. Ltd. B.P.641,875: Appl. 23/9/1948; Filing 16/9/1949 [Addition to B.P.622,676*]. Materials containing secondary cellulose acetate are dyed without saponification in a solution of a vat dye that has been reduced to the leuco state by means of a weak alkali (sodium carbonate or ammonia) and a formamidine sulphinic acid (for example, thiourea oxidised with hydrogen peroxide) or a stabilised solution of sodium hydrosulphite (calcium cyanamide as stabiliser). The vat also contains a swelling agent (such as alcohol). (*See *J. Textile Institute*, 1950, 41, A 76.) C.

Blower-Type Open-Width Drying Machine. Julien Dungler. B.P.641,963: Appl. and filing 3/7/1947; Publ. 23/8/1950; French appl. 26/7/1946. In a machine for drying cloth the material is fed at full width, without strain, between the outer surface of a rotating perforated drum (or two drums in parallel) and the inner surface of an endless conveyor band that is permeable to gas and liquids and travels at the same surface speed as the drum(s); unheated gas (air) is fed under pressure to the interior of the drum(s). C.

Screen Printing Stencil Frame. Severoceske Strojirny a Slevarny Narodni Podnik. B.P.641,996: Appl. and filing 31/12/1947; Public. 23/8/1950; German appl. 5/8/1941. A stencil frame for screen printing is formed of profiled metal tubing which has a dove-tail recess on the upper side into which the screen fabric is clamped by means of a readily fusible strip, for example, of a vinyl resin. C.

Treatment of Cellulosic Textile Materials and Products thereof [to improve crease-resistance]. Linton A. Fluck, Jr., assignor to American Cyanamid Co. U.S. Patent 2,536,050 dated Jan. 2, 1951. C.

Method of Waterproofing Paper Textile Fabrics. John J. Petroske, assignor to Patchogue-Plymouth Mills Corporation, U.S.A. U.S. Patent 2,536,656 dated Jan. 2, 1951. C.

Compressive Shrinking and Finishing Blanket. Zephir J. Chagnon, assignor to Albany Felt Co., U.S.A. U.S. Patent 2,536,974 dated Jan. 2, 1951. C.

Oil-in-Water Type Emulsion for Flameproofing Fabrics. Frederick Fordemwalt, assignor to American Cyanamid Co. U.S. Patent 2,536,978 dated Jan. 2, 1951. C.

Flame Resistant and Mildew Resistant Composition for Cellulose Fibres and Fabrics. Richard D. Vartanian, assignor to American Cyanamid Co. U.S. Patent 2,536,988 dated Jan. 2, 1951. C.

Treatment of Organic Textile Materials and Products thereof [with Isocyanate Polymers]. Edward L. Kropa and Arthur S. Nyquist, assignors to American Cyanamid Co., U.S.A. U.S. Patent 2,537,064 dated 9/1/1951. C.

Fast Speed Fluid Treatment of Running Lengths of Fabric. Edward F. Williams and William J. Brayden. U.S. Patent 2,537,290 dated 9/1/1951. C.

Drying Rayon [Cakes]. Francis B. Breazeale, assignor to American Enka Corporation. U.S. Patent 2,539,943 dated Jan. 30, 1951. C.

Apparatus for the Continuous After-treatment of Flocculent Textiles. Bastiaan Gijsbertus de Klerk, assignor to American Enka Corpn, U.S.A. U.S. Patent 2,539,947 dated 9/1/1951. C.

Yarn-Treating Vat Having Guide Wheel Driven by a Magnetic Coupling. John K. Whishnant, assignor to American Enka Corporation, U.S.A.. U.S. Patent 2,539,982 dated 30/1/1951. C.

Treatment of a Heat-Set, Oriented Nylon Fabric with Formaldehyde. Boynton Graham and Orion Edwin Schupp, Jr., assignors to E. I. du Pont de Nemours & Co., U.S.A. U.S. Patent 2,540,726 dated Feb. 6, 1951. C.

Hydantoin Derivative Textile Lubricants. Hillary Robinette, Jr., and Carl R. Pacifico, assignors to Publicker Industries Inc., U.S.A. U.S. Patent 2,541,101 dated 13/2/1951. C.

Photographic Process for Dyeing of Textile Materials. Sam Charles Slifkin, assignor to General Aniline & Film Corporation, U.S.A. U.S. Patent 2,541,178 dated 13/2/1951. C.

Cellulosic Textile Shrinkage Control and Crease Resistance with Inhibited Tenderising Action. Les Beer, assignor to Alrose Chemical Co., U.S.A. U.S. Patent 2,541,457 dated 13/2/1951. C.

Process for Producing an Impregnated, Waterproof, Fibrous Sheet. Charles M. Baskin, assignor to Standard Oil Development Co., U.S.A. U.S. Patent 2,541,631 dated 13/2/1951. C.

Process for Improving [Fastness of] Vat-Dyed Nylon Fibres. William Henry Sharkey, assignor to E. I. du Pont de Nemours & Co., U.S.A. U.S. Patent 2,541,839 dated 13/2/1951. C.

5—ANALYSIS, TESTING, GRADING AND DEFECTS

(A)—Fibres

Converted Sliver Tester Speeds Evenness Analysis. R. A. Rusca. *Text. World*, 1951, 101, No. 1, p. 120. The strip chart of a Saco-Lowell sliver tester has been replaced by 30 electrical counters which present data in a form ready for statistical analysis. C—5A.

Crease Properties of Viscose Rayon: Relationship to Fibre Structure. ("Zusammenhänge zwischen Feinstruktur und Knittereigenschaften von Viskosereyon.") E. Elöd and M. Kramer. *Textil-Praxis*, 1951, 6, No. 1, pp. 52-56. A preliminary investigation into the effect of fibre structure on the creasing properties of viscose rayon indicates that degree of polymerisation and alkali content of the spinning solution are of minor consequence as compared with extensibility, packing density, density of outer layer, count, and roundness of cross-section. In general, it can be said that improved crease-resistance is coincident with greater tensile strength and elastic recovery. Modification of crease-resistance by adjustment of spinning conditions is not likely to be very successful. Control of fibre structure must be made at the outset, and the content of synthetic resin, with its consequent disadvantages, must be reduced to a minimum. C—5A.

D-13: The Men Who Set the Standards. American Society for Testing Materials. *Text. World*, 1951, 101, No. 1, pp. 106-107, 121. Some information is presented on committee D-13 of the American Society for Testing Materials which deals with standards for textiles. C—5A.

Intrinsic Fibre Strength in the New Egyptian Cottons. A. A. Youssef. *Text. Merc.*, 1951, 124, No. 3231, pp. 403-404. Reference is made to the problem, which is being studied at the Giza Spinning Textile Mill, of forecasting yarn strength from measured characteristics. Using the ratio of staple length to hair weight, a correlation coefficient, between actual and forecasted yarn strength, of 0·93 has been obtained. The importance of cotton fibres of high intrinsic strength is briefly discussed. Increase in fibre strength tends to reduce neppiness and enhances the "use value" of the yarn. C—5A.

Quality Control for Small Mills. W. A. Thomason. *Text. World*, 1951, 101, No. 1, pp. 99-101. Photographs are given to illustrate a quality control system that has been set up in a small American textile mill (spinning, weaving, and dyeing). C—5A.

"Super-Cottons". George Buck. *Text. World*, 1951, 101, No. 1, pp. 119-121. Four questions dealing with the definition of super-cottons, their effects on mill and consumer, and their ideal properties are briefly answered. C—5A.

Chemical Analysis of Textile Fibre Mixtures: A Simplified Method. Anon. *Fibres*, 1950, 11, No. 10, pp. 366-367. The article describes a simple technique for analysing fibre mixtures, referring the reader to an article by Howlett, Morley and Urquhart (see *J. Textile Institute*, 1942, 33, A452) for solvents recommended for various fibre mixtures. C—5A.

The Detection and Estimation of Damage in Jute Fibre: Part II—Assessment of Fungal Damage on Small Quantities of Fibre Material. S. N. Basu and S. N. Ghose. *J. Textile Institute*, 1951, 42, No. 1, pp. T1-5. An investigation has been carried out to see if the microscopical test (described in Part I*), and also the determination of loss in weight of the fibre material, could be used to assess the jute decomposing capacities of individual fungal species. (*See *J. Textile Institute*, 1948, 39, A201.) C—5A.

Frequency of Neps in Yarns of Egyptian Cottons. Osman Mohammed Abdelhafez. *Egypt. Min. Agric. Tech. Bull. No. 253*, 1950, 27 pages (in English and Arabic). The results described appear to show that in given conditions the number of neps in a yarn is a specific characteristic of a particular variety of cotton. Hair-weight per centimetre is inversely proportional to the mean number of neps per constant length of yarn. C—5A.

A Mechanised Fibre Blender. Lyle E. Hessler and Herbert E. Kieke. *Text. Res. J.*, 1950, 20, No. 11, pp. 802-804. Details are given of the mechanisation of a hand blender for the preparation of samples of cotton for fibre testing. C—5A.

Method for the Quick Determination of Fibre Content in Flax. M. Zilahi. *Magyar Textiltechnika*, 1950, 3, No. 4, pp. 107-109 (through *Hungarian tech. Abstr.*, 1951, No. 3, p. 18). A technique is described for reducing bast fibres to what is almost their pure cellulose content; comparison of this end product for different types of flax affords a basis for quantitative comparison of fibre content. C—5A.

Quality Faults of Viscose Silk. Gy. Mori-König. *Magyar Textiltechnika*, 1950, 3, No. 2, pp. 54-57 (through *Hungarian tech. Abstr.*, 1951, No. 3, p. 18). The article discusses in detail various faults which can occur in viscose rayon, and the sources of these faults. C—5A.

The Relationship of Wax Content to Maturity of Cotton. A. N. J. Heyn. *Text. Res. J.*, 1950, 20, No. 11, pp. 771-772. The author deals with some points raised by Marsh, Barker, Kerr, and Butler[1] in connection with his paper[2] on the relationship between the wax content and the maturity of cotton. ([1]See *J. Textile Institute*, 1950, 41, A 504; [2]see *J. Textile Institute*, 1950, 41, A 132.) C—5A.

Report of the Chief of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, 1949. U.S. Department of Agriculture *Pamphlet*, 1949, 86 pages. Under the heading of "Cotton and Cotton Products", the report discusses (pp. 3-8) studies of watertight cotton fabrics, which appear to be more satisfactory when made from less mature cottons; the use of chemically modified cotton fabrics with ion-exchange properties in place of the granular resins at present in commercial use as filtration and reaction media; longer life of cotton treated with lead chromate and used as tobacco shade cloth; insect-resistant treatment which can be applied to warp yarns with size prior to weaving, or with starch and filler during finishing, at a cost of not more than 1 per cent. per square yard of cloth; resistance of partly acetylated cotton to fresh and salt water, and to heat; a simple and rapid dye test to detect the proportion of immature fibres present in any cotton; and the adapting of an old lint-cutter to a new process for using waste cotton. In other sections mention is made (pp. 21-22) of the improvement of allyl starch by co-polymerisation with styrene, and (p. 59) the development of a continuous filament casein yarn. C—5A.

Use of a Microscopic Technique in Studying the Filtration Characteristics of Wool and Cotton Fibres. Clarke A. Rodman and Alvin W. Pansey. *Text. Res. J.*, 1950, 20, No. 12, pp. 873-879. The "contaminants" found in engine lubricating oil may be divided into two classes—inert, inorganic matter, and colloidal organic matter. The removal of the latter by sorption on cotton and

wool fibres has been studied using a microscopic technique. A number of photomicrographs showing the appearance of fibres during filtration are presented and discussed. C—5A.

Hydrophilic Fibres: Characteristics. Kiyohisa Fujino and Hiromichi Kawai. *Teijin Times*, 1949, 19, No. 2, pp. 1-8 (English summary) (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5096[d]). Oscillographs of the damping oscillation of a freely hanging end of thread showed that among artificial fibres, those having hydroxyl groups on the side chain, such as viscose rayon, show markedly lower moduli of elasticity and viscosity when wet than when dry. C—5A.

Data Sheets. Max Matthes. *Melliand Textilber.*, 1951, 32, No. 1, (facing p. 78); No. 2 (facing p. [18]). In German. A series of detachable data sheets has been commenced. The sheets are divided into four sections which cover respectively, A: textile raw materials; B: mechanical processing; C: chemistry and chemicals; and D: general information. The series will apparently continue indefinitely. C—5A.

Determination of Staple Diagram of a Re-Cut Staple Fibre. Fritz Karsch. *Textil-Praxis*, 1951, 6, No. 2, pp. 93-97. In German. It may be found that the average staple length of a fibre in sliver form is too long for a given application. An analytical method is described whereby when the material is cut up at given intervals, the new average staple length and the shape of the new staple diagram can be determined from the original staple length. C—5A.

Synthetic Fibres: Effects of Hydrochloric Acid on the Strength and Elongation. Shoki Lee and Yukihiro Umakawa. *Chem. High Polymers* (Japan), 1945, 2, *pp.* 224-34 (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5107[b]). This article describes the results of experiments to determine dry and wet strength, and elongation, of silk, wool, viscose rayon, and several pure synthetic fibres, after immersion for 1-10 hours in 0·1-20 per cent. hydrochloric acid at 50° C. C—5A.

Measurement of Fibre Orientation. Charles H. Lindsley. *Text. Res. J.*, 1951, 21, No. 1, pp. 39-46. A method is described for estimating the extent of fibre orientation in lap, sliver, and roving. The sample is clamped in a special device and a section of fixed length is cut out. The fibres in this section are then straightened by combing and the number of fibres having a combed length greater than the original fixed length is counted. The ratio of the portion of the combed fibres having a length in excess of that of the original, to the portion retaining the original length, gives an "orientation index". Photographs are given showing the various steps in the procedure. C—5A.

Mechanical Hysteresis Properties of Single Fibres and Cords. Helmut Wakeham and Edith Honold. *Text. Res. J.*, 1951, 21, No. 1, pp. 1-5. An apparatus for stretching and relaxing single fibres for the purpose of determining mechanical hysteresis losses is described. Results obtained on cotton, viscose rayon, and nylon fibres are compared with similar data previously obtained on cords from which the fibres were taken. C—5A.

Cotton Quality Specification: New Automatic Cotton Colorimeter. Dorothy Nickerson. *Text. Res. J.*, 1951, 21, No. 1, pp. 33-38. A description is given of the construction and use of the Nickerson-Hunter cotton colorimeter (see also p.476). C—5A.

"Perlon": Mechanical Properties. G. Metzger and F. Sauerwald. *Kolloid-Z.*, 1950, 117, No. 3, pp. 176-180. In German. The authors examined the flow characteristics of "Perlon" (polyamide) fibre when it was extended. It has been observed that deformation is uniformly distributed over the whole cross-sectional area, and that there is apparently no change in degree of polymerisation. Compact blocks of great strength are obtained when fibres, the surfaces of which have been caused to swell by means of suitable solvents, are simultaneously compressed and heated. C—5A.

Cotton Fibres: The Relation of Length to Other Physical Properties. Ora W. Morlier, Rollin S. Orr, and James N. Grant. *Text. Res. J.*, 1951, 21, No. 1, pp. 6-13. Results are reported on tests of breaking load and elongation of single fibres at constant specimen length from the length groups of six cotton samples. The instrument used in these tests is described. The average weight-fineness of the centre section of fibres from each length group was determined, and the tenacity (specific strength) and the "stiffness" of the fibres were calculated. A method is described for calculating a single fibre tenacity "index" for a cotton sample from the tenacity values of three model-length groups. C—5A.

Fibres: Simple Expressions for the Circularity and Fullness. Evald L. Skau. *Text. Res. J.*, 1951, **21**, No. 1, pp. 14-17. The author gives a number of relationships which follow from Schloemer's (1930) concept that the "fullness" or roundness of a fibre is the ratio of the area of the fibre cross-section to the area of the circle of equal perimeter. An analysis is made of the error caused by deviations of the cutting plane from the plane normal to the fibre axis, in calculating the circuarity of idealised fibres from cross-sections. C—**5A.**

Rain-Grown and Irrigated Cotton: Comparison of the Dyeing Characteristics and Related Properties. American Association of Textile Chemists and Colorists (Piedmont Section). *Amer. Dyest. Rep.*, 1950, **39**, No. 26, pp. 901-911. Comparison of the two types of cotton (Deltapine P14 and Acala 4-42) seemed to show no considerable difference, except in the amount of substance that could be extracted by water from the raw cottons, and in the molecular chain length. Neither of these could be related to differences in shade in cottons treated with the same dye. Photomicrographs showed no difference in distribution of the dye within the fibre, and it was therefore concluded that the difference in dyeing result must be due to a difference in the reflectance characteristics of the fibre-dye systems. Further investigation showed that this was so. Shade differences were practically eliminated by mercerisation. Eleven tables give various properties and reactions of the two types of cotton, and six graphs show the rate of vat dyeing, the rate of oxygen consumption in bleaching with sodium hypochlorite and hydrogen peroxide, and the effect on strength and degree of polymerisation of treating the cottons with hydrocloric acid. C—**5A.**

Textile Testing: General Directives as to Methods. Part II. Max Matthes. *Melliand Textilber.*, 1950, **31**, No. 6, pp. 403-406; No. 7, p. 476. In German. In this continuation of a series of articles on equipment and methods employed in a textile testing laboratory, directives are given for ensuring proper atmospheric conditions in the testing chamber, and for preparing the test specimens. Attention is also given to machinery and instruments used in testing, and their idiosyncrasies, and to possible sources of error or lack of reproducibility of results. The importance of maintaining a neat and orderly set of books for recording all data is empasised. (See *J. Textile Institute*, 1951, **42**, A 174.) C—**5A.**

(B)—YARNS

Saco-Lowell Sliver Tester: Conversion to Electrical Recording. Ralph A. Rusca. *Text. Res. J.*, 1950, **20**, No. 11, pp. 780-786. The theory and mechanics of converting a Saco-Lowell sliver tester from a graphic-recording instrument to one which records by means of electrical counters, are described. Photographs of the machine are given. C—**5B.**

Sliver and Roving Uniformity: Use of Tabulator Data in Analysis. John P. Elting and James C. Barnes. *Text. Res. J.*, 1950, **20**, No. 11, pp. 773-779. The use of a data tabulator in the analysis of sliver, roving, or yarn uniformity is discussed. The nature of fundamental problems, which arise as a result of the broad sampling and methods made practical by the tabulator, is emphasised. The illustrations are based on the type of tabulator described by Rusca*. (*See previous abstract.) C—**5B.**

Humidity of the Air: Significance in Textile Strength Tests. F. Izmay. *Magyar Textiltechnika*, 1950, **3**, No. 3, pp. 87-89 (through *Hungarian tech. Abstr.*, 1951, No. 3, p. 17). The article deals with requirements of relative humidity and temperature for Hungarian standard strength tests of textiles, and includes tables showing hygroscopicity of some textile fibres in relation to dry weight, percentage ratio of wet strength to dry strength, and a method of calculation used in correcting results for textile strength tests which have not been made at the prescribed humidity and temperature (65 per cent. R.H., 20° C.). C—**5B.**

Simplified Statistical Methods for Routine Textile Testing. K. N. Chandler and J. Lomax. *Text. Rec.*, 1951, **68**, February, pp. 89-90. Some of the terms used in the application of statistical methods to the analysis of a series of test results, are explained. Simple statistical methods for use in routine textile testing (*e.g.* measurement of count, twist, or strength) are described. C—**5B.**

Combed Bands: Uniformity. F. Tobisch. *Magyar Textiltechnika*, 1950, **3**, No. 2, pp. 49-52 (through *Hungarian techn. Abstr.*, 1951, No. 3, p. 17)). A new

method is described, of assessing the degree of irregularity of combed sliver, using as a basis for calculation the reciprocal value of the number of twists per unit length. The mathematical theory and formulæ of the method are given. Tests confirmed the accuracy and speed of the method. C—5B.

Mixture Yarns. ("Theorien über Mischgespinste.") A. Wilhelm. *Textil-Praxis*, 1951, **6**, No. 1, pp. 16-17. The properties of mixture yarns containing dissimilar fibres, for example, nylon and cotton, are discussed. After discussing the effect of angle of twist and drafting, desirable features in mixture yarn are summarised as (1) similar elongation at break, and (2) similar breaking stresses of the component fibres. Factors limiting the achievement of these features include irregularity of fibre characteristics (count, strength, *etc.*), irregular state of tension of fibres within the yarn, and uneven distribution of fibres. C—5B.

Jute and Hemp: Testing Mixed Yarns. Anon. *Alphomega*, 1950, 5, No. 2, p. 27. A simple method of detecting jute fibre in hemp tow is described. The yarn is soaked in nitric acid when jute turns red and hemp turns yellow. C—5B.

Jute Fibre Bundles: Breaking-Twist and Diameter in Relation to Spinning Quality. B. K. Chakrabarti. *Indian Text. J.*, 1950, **41**, November, pp. 105-115. The breaking twist of yarn is defined as the amount of twist which will cause the yarn to break under no load. The diameter of bundles of jute fibre refers to the density of packing of fibres in the yarn. A method is described of determining the breaking twist of standard bundles of jute under a very small load, and measuring the diameter of such bundles when twisted through a desired amount. It is considered that either of these tests, but more particularly the former, will account for a large percentage of the spinning variation of a yarn. C—5B.

Continuous Pneumatic Gauging of Material in Thread or Wire Form. Anon. *Instrum. Pract.*, 1951, 5, No. 4, pp. 213-215. The development, for industrial use, of a previously described* pneumatic evenness testing instrument (for thread- or wire-like materials) is discussed. (*See *J. Textile Institute*, 1951, **42**, A 103.) C—5B.

Statistical Certainty in Textile Investigations. U. Graf and H.-J. Henning. *Textil-Praxis*, 1950, 5, No. 6, pp. 379-382. In German. An introduction to the study of statistical certainty about the behaviour or quality of a given product is illustrated by references to determination of twist in a viscose rayon yarn, and tensile strength tests on natural silk. C—5B.

Testing Evenness of Yarns. Erich Wagner. *Textil-Praxis*, 1950, 5, No. 5, pp. 294-297; No. 6, pp. 351-353; No. 7, pp. 413-416. In German. Apparatus for determining the regularity in properties of yarns is reviewed in a systematic manner. Outmoded and very restricted special methods are not included. Direct comparison of appearance under standard conditions, mathematical and graphical analysis of individual samples, and discontinuous and continuous testing of strength and extensibility, are all described in detail and illustrated by diagrams. C—5B.

Tyre-Cord Compression Fatigue. M. W. Wilson. *Text. Res. J.*, 1951, **21**, No. 1, pp. 47-54. A new test method for testing compression-tension fatigue in tyre cord is described. Short lengths of the cord are embedded in small rubber blocks which are fixed between two metal discs (at their rims). The discs are set at an angle to each other and driven by an electric motor. During one rotation each sample undergoes a complete compression-tension cycle. The number of breaks in a given time is determined. C—5B.

Raw Silk: Cohesion. Guido Gallese. *Riv. Tessile*, 1950, 5, No. 6, pp. 597-600; No. 7, pp. 701-703; Reprint in *Società Industriale Serica Pamphlet*, 1950, No. 7, pp. 3-19. In Italian. Descriptions are given of various types of apparatus for determining the maximum or minimum resistance of the component brins, in a raw silk bave, to separation by friction. Comments are made on the practicability and efficiency of the machines, which include designs by Rimoldi, Colombo (two types), Duplan, the Silk Association of America, the Milan Silk Conditioning House, Branca (two types), and Paume. After reviewing the laws governing cohesion in raw silk, the author puts forward eight essential features or a cohesion-testing machine. Twenty-three references are given. C—5B.

Yarn Quality. E. R. Goshawk. *J. Textile Institute*, 1951, **42**, No. 1, pp. P1-11. The author begins by defining his terms. "Quality" is defined, and two elements

(extrinsic and intrinsic characters) which make up the resultant yarn quality are recognised. The characteristics which contribute to these two elements are briefly discussed. An ideal yarn is defined as one which is clean, uniform, and endless (free from knots or breaks). After this introduction, the following factors contributing to yarn quality are dealt with more fully: endlessness, cleanliness, uniformity, yarn lea-count, and yarn strength. Finally, a description is given of the construction and performance of a constant tension winding machine developed by the Research Department of Fine Spinners and Doublers Ltd. for the determination of yarn breakage rates. C—5B.

(C)—FABRICS

A Multiple Culture Technique for Testing Rot-resistance, Particularly Suited to Jute Materials. S. N. Basu, A. P. Bhattacharyya, and R. G. Bose. *J. Textile Institute*, 1950, **41**, No. 12, pp. T466-480. A method for the evaluation of rot-resistance of textile materials, designed primarily for application to jute materials, is described. The material is inoculated simultaneously with five species of fungi which occur frequently in mildewed jute materials. Some experiments are reported including a comparison of the method with soil incubation, and single culture tests. A bibliography of 26 references is given. C—5C.

Crease-resistance: Determination. ("Die Bestimmung von Knitterwinkeln an Geweben.") K. Schlien. *Textil-Praxis*, 1951, **6**, No. 1, pp. 47-52. Fibre characteristics affecting the crease resistance of a fabric include chemical and physical structure, length and fineness of fibre, and the amount of twist in the yarn. The thickness and weave of the fabric also play an important part. These factors are briefly discussed. Thirteen methods for determining the crease-resistance and angle of crease are described, and include: hand crushing; hand wringing; folding under a standard weight for standard time, (four variations); the concertina method in which the folded cloth, after being subjected to a known pressure, is allowed to expand, the expansion being a measure of crease-resistance; passing folded material through rollers; measuring the force required to bend the material through a whole range of angles by means of a balance; determining the force required to compress a loosely folded specimen between two glass plates; the flexometer; and the "Kompressometer" (similar in principle to the flexometer). The advantages and disadvantages of each method are considered. C—5C.

Evaluation of Quality and Suitability of Textile Materials. ("Über die Gütefeurteilung von Textilien.") Hans Böhringer. *Textil-Praxis*, 1951, **6**, No. 1, pp. 12-16. The problem involved in developing a satisfactory method of assessing the relative merits of different textile materials is far from being solved as yet. Apart from processing qualities, the wear characteristics under various conditions must be taken into consideration. The construction of comparative tables and/or diagrams is discussed and the conditions under which materials should be compared are defined. A practical example is given in the comparative evaluation of actual wear and washing characteristics of a series of cotton and rayon shirting materials. The results are summarised in a three-dimensional graph of which the co-ordinates represent: (1) number of ends per centimetre; (2) number of picks per centimetre; and (3) resistance to damage (under defined test conditions). C—5C.

Air Porosity of Open-Weave Fabrics. Part I: Metallic Meshes. A. F. Robertson. *Text. Res. J.*, 1950, **20**, No. 12, pp. 838-844. A method is proposed which has been experimentally verified for analysing porosity data in terms of two dimensionless parameters—the discharge coefficient and Reynolds number—characterising the flow through inter-yarn pores of a metallic fabric. A slightly modified Schiefer permeability tester was employed for the experimental work. The porosity data for the range of wire screens used (from 8 to 120 wires per inch) can be plotted within rather narrow limits as a single line relating the two dimensionless flow coefficients. C—5C.

Air Porosity of Open-Weave Fabrics. Part II: Textile Fabrics. A. F. Robertson. *Text. Res. J.*, 1950, **20**, No. 12, pp. 844-857. Laboratory physical data are presented for a series of 45 different open-weave fabrics of four weave patterns—plain, basket, twill, and mock-leno weaves. Porosity data are given in dimensionless form. It is shown that the effective woven-yarn diameter which determines the projected fabric open area, depends mainly on the type of weave, and for

any particular weave the ratio of yarn diameter to the square root of the denier is nearly constant. The ability to predict effective yarn diameter, for the type of fabrics produced, makes it possible to predict fabric open area and thus porosity of similarly produced fabrics. Sample calculations are given illustrating the possibility of predicting fabric porosity. C—5C.

Perspiration Colorfastness in Rayon Fabrics: An Evaluation of Four Laboratory and Two Wear Test Methods for Measuring. Pauline B. Mack, M. Virginia Jones, Suzanne Davison, and Marion K. Knight. *Text. Res. J.*, 1950, **20**, No. 12, pp. 862-869. Four methods of applying artificial perspiration in a test of rayon fabrics have been studied, using a series of seven periods of contact of the test fabric with a composite test cloth for each application method. Thirty-two fabrics representing a wide range of perspiration colourfastness were used in each of the tests. Some of these fabrics were also used in actual weaving tests. Colour fading and bleeding results are presented and discussed. C—5C.

Fabric Structure and Its Relation to Certain Physical Properties: An Investigation. G. H. Hotte. *Text. Res. J.*, 1950, **20**, No. 12, pp. 811-828. This research is concerned with the study of the breaking load and ultimate elongation characteristics of combination fabrics as a function of the load-elongation characteristics of their component fabrics. The test samples used consisted simply of two strips of fabric placed together but not bonded in any way. Several tables of results and load-elongation curves are presented. Results are discussed. C—5C.

Rayon Fabric Strength Depends on "Variables". Rene Bouvet. *Text. World*, 1951, **101**, No. 2, pp. 145, 147, 270. Some "little-known" factors that increase the strength of rayon fabrics and others that reduce it are considered. The former include dimension-changes, sizings and finishes, and packing factor, while among the latter are processing damages, warp-length variation, varied types of yarn, and crimp. C—5C.

Yarn Count Conversion Factors. Max Matthes. *Melliand Textilber*, 1951, **32**, No. 1, Data Sheet D1 (facing p. 78). In German. A table is presented for converting various systems of yarn counting to that of the metric system, and *vice versa*. C—5C.

Abrasion Resistance and Its Measurement. J. M. Buist. *Trans. Inst. Rubber Ind.*, 1950, **26**, No. 3, pp. 192-222. The article considers the problems of abrasion measurement, with particular reference to rubber, although the materials tested included textiles, felts, and fabrics coated with rubber or plastics. Twenty-one existing abrasion machines are reviewed and classified in one of four categories. There are sixty-one references, and a report is given of the discussion which followered the paper when it was read in February, 1950. C—5C.

Abrasion Testing Machines: Modern Techniques and Developments. Helmut Köb. *Melliand Textilber.*, 1951, **32**, No. 2, pp. 119-124. In German. A survey is made of the development of abrasion testing machines. The principles upon which they are based are neatly illustrated by diagrammatic sketches. Various types of earlier apparatus are described; these depended primarily on the application of a rough surface to the surface of the material. In defining the requirements of an abrasion or wear tester, it is shown that mere application of friction is insufficient to forecast the behaviour of a material, and that flexing or folding and other motions also play an important part. A description is given of the steps taken to include these factors, and the Stoll Quartermaster Abrading Tester is presented as the most modern development along these lines. A lengthy description of the machine and its characteristics concludes the article. C—5C.

Assay of Bandaging Cotton. H. Spengler. *Festschrift Paul Casparis*, 1949, pp. 184-97 (in German) (through *Chem. Abstr.*, 1950, **44**, No. 20, p. 9626[a]). Different bandaging materials obtained on the Swiss open market were subjected to the following physical and chemical assays: nett weight, fibre length, absorptive capacity, quantitative water absorption, acid content; examination of the aqueous extract for turbidity, chemical impurities (fining agents), and its action with potassium permanganate; moisture content, ash, and the copper number. Three solutions are prepared for determining the copper number: (1) 60 g. copper sulphate dissolved in water, diluted to 1 l.; (2) 200 g. Rochelle salt and 100 g. caustic soda dissolved in water, diluted to 1 l.; (3) 100 g. ferric ammonium sulphate and 140 c.c. sulphuric acid (specific gravity 1·84), diluted to 1 l. This last solution is

titrated for a blank with 0·1N potassium permanganate. First 30 c.c. of (1) and 30 c.c. of (2) are heated to boiling, a one-gram wad of bandage previously dried at 103-5° C. is introduced, and the mixture boiled for three minutes, the wadding being forced down with a glass rod to ensure complete contact. Next, the hot solution is filtered on a sintered glass funnel, and the wadding washed first with hot water, then with cold. The well-pressed wadding is transferred to a beaker, covered with 30 c.c. of (3), stirred for 30 minutes, filtered, the wadding washed with five 100 ml. portions of cold water, and the green filtrate titrated directly in the suction flask with 0·1N. potassium permanganate to an end point where the rose colour lasts for at least 45 seconds. C—**5C.**

Wear-Resistance Determination: A Critical Survey. Horst Holderer. *Textil-Praxis*, 1950, **5**, No. 7, pp. 443-446. In German. The factors affecting wear-properties are so numerous that definite information cannot be obtained from only one testing machine, such as the abrasion tester. This type of machine, however, can give reliable results when certain conditions are strictly observed, and when it is used in conjunction with tensile, bursting, and other tests. C—**5C.**

Yarn Slippage in a Fabric: Theoretical Considerations on Devising a Test. Horst Holderer. *Textil-Praxis*, 1951, **6**, No. 2, pp. 114-117. In German. Several methods for determining yarn slippage in a fabric are considered, and compared both in mode of operation and in assessment of results. Methods include modified abrasion, suspending a weight on a needle passing through the specimen, breaking of a seam on a tensile-testing machine, and displacement of an end contained in the specimen, which is held in a suitable frame, by attaching the end to a yarn testing machine. C—**5C.**

(D)—Other Materials

Electric Control of Porosity. Jerome J. Suran. *Modern Plastics*, 1951, **28**, No. 6, pp. 97, 98, 100. The theory of fluid flow through a porous sheet is briefly considered, to show the importance of the control of pore size on the porosity characteristics of a material. An electrical method for producing plastic or paper sheets of controlled porosity (known as "electroventing") is described. In this process, the material is passed between a pair of electrodes across which the voltage drop is equal to, or greater than, the breakdown voltage of the plastic. A series of arc discharges thus take place, and the heat generated causes the material to plasticise in the immediate area of contact. On cooling, a permanent hole is obtained. The effects of electroventing on the strength properties of paper and plastic sheets are indicated with reference to experimental observations. C—**5D.**

Rubber Hardness Testing: A Practical Manual. A. L. Soden. *India-Rubber J.*, 1950, **119**, No. 27, pp. 7-10, 17, 18, 21, 22; 1951, **120**, No. 1, pp. 7-10, 18, 20; No. 2, pp. 9-11, 17, 18, 20; No. 3, pp. 4, 7-10; No. 4, pp. 9-11, 16; No. 5, pp. 7-10; No. 6, pp. 6, 9-12; No. 7, pp. 6-9; No. 8, pp. 4-6, 9; No. 9, pp. 6, 8, 22. This comprehensive survey of rubber hardness testing covers (1) the simple theory of indentation hardness tests, (2) standard hardness tests (British, American, German, French, and Italian), (3) factors affecting design and use of hardness instruments, and (4) the main testing instruments now in use. In the last mentioned section details are given of the construction, mode of operation, and calibration of 18 instruments (with, in most cases, an illustration), and a brief mention is also made of 12 other (spring-loaded) instruments. The bibliography contains 54 references. Appendices deal with the conversion of the units of hardness from one system to another. C—**5D.**

Crease-Resistant Finishing Agents: Chemical Detection of Presence of. Herbert Maria Ulrich. *Textil-Praxis*, 1950, **5**, No. 7, p. 442. In German. The article describes chemical methods for the detection of phenoplasts, aminoplasts and boron-complexes. C—**5D.**

Fading Tests: Value of Various Lamps. Paul Rabe. *Melliand Textilber.*, 1950, **31**, No. 4, pp. 278-280; *Textil-Rundschau*, **6**, No. 2, pp. 75-78. In German. The resemblance of various light-sources to daylight is discussed. The spectrum of the mercury lamp differs too profoundly to be of any real value. Different forms of fading lamp using carbon arcs are briefly described, including the "Fadeometer", the High Intensity Arc developed at the Shirley Institute, and the "Fugitometer". Other types of lamp dealt with include the Osram "Nitra-

lamp", and the low-tension discharge lamp, the latter giving a very faithful and consistent reproduction of daylight. **C—5D.**

Starches: Note on the Determination of Moisture by the Karl Fischer Reagent. Elizabeth A. McComb. *J. Assoc. Offic. Agric. Chem.*, 1950, **33**, No. 4, pp. 1021-1022. A procedure for the determination of moisture in starches, using dry methanol and the Karl Fischer reagent, is described. **C—5D.**

Vulcanised Rubber: Simple Method for Determining the Dynamic Coefficient of Friction. B.B.S.T. Boonstra. *Trans. Inst. Rubber Ind.*, 1950, **26**, No. 4, pp. 281-287. The article describes a method of measuring the coefficient of friction at low speeds by means of a dynamometer. Two moulded rubber wheels are pulled over a roadlike surface, at the same time being made to rotate at a speed non-concordant with the linear speed on the surface. The average force needed to turn the wheels over the surface against the resulting friction is proportional to the coefficient of friction. The article describes experiments carried out to prove the usefulness of the apparatus. Photographs and diagrams are included. **C—5D.**

Use of Statistical Methods in the Planning of Road Wear Tests. J. M. Buist, R. G. Newton and E. R. Thornley. *Trans. Inst. Rubber Ind.*, 1950, **26**, No. 4, pp. 288-304. A technique has been evolved by the authors for using modern statistical methods to distinguish between effects due to real differences between compounds and effects due to extraneous factors, in testing tyre tread compounds for wearing properties. An estimate of the experimental error, obtained by using the analysis of variance technique, may be used to calculate the fiducial limits between which the wear index of any compound may be said to lie with a given degree of probability. Data from two road tests planned in this way are used to illustrate the method. **C—5D.**

Use of Ultrasonic Equipment in Testing Materials. L. Bergmann. *Z.V.D.I.*, 1950, **92**, September 1st, p. 711 (through *J. Brit. Shipbldg R.A.*, 1950, **5**, No. 12, p. 663). The author briefly describes the historical development of this type of apparatus, and the theory underlying its use. He illustrates and describes some of the apparatus at present in production, and compares the penetration and echo-impulse methods of tracing faults in materials. **C—5D.**

Copper and Its Derivatives: Action on the Ageing of Rubber. Henry Villain. *Rev. gén. caoutchouc*, 1949, **26**, pp. 70-74; *Rubber Chem. & Technol.*, 1950, **23**, pp. 352-361 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 1373[a]). The author studied the influence on the ageing of rubber of various inorganic and organic copper salts, the role of fatty acids (such as stearic acid) and of the composition of the vulcanizing system, and the influence of a few substances having a protective effect. **C—5D.**

Light-Fastness: Observations on I. H. Godlove's Uniformity of Grading of the American, British and German Standards. Society of Dyers and Colourists, Co-ordinating Committee for Fastness Tests. *Amer. Dyest. Rep.*, 1950, **39**, No. 26, p. P912. **Uniformity of Grading of American, British and German Light-Fastness Standards. Reply to the Society of Dyers and Colourists.** I. H. Godlove. *Amer. Dyest. Rep.*, 1951, **40**, No. 4, pp. P114-P118. Godlove's original paper is referred to in *Summary*, 1950, p. 266. The Society of Dyers and Colourists comment on the following points: (1) the value of the Adams "Chromatic Value" formula; (2) the difference between the concepts on which the American and British standards are based, and between the criteria of fading in the two countries; (3) the application of the American standards to exposure for one time only and resulting in only a small degree of fading; (4) the advantage of the existing agreement between the British, French, Swiss and German standards, and (5) (*a*), the fact that the British higher-numbered standards are "rather too fast", and (*b*) a number of what appear to be inconsistencies in the Godlove paper. All these comments are brief, but Mr. Godlove, in his reply, deals with them at considerable length—particularly point (1)—except for point (4), which he feels he is not competent to discuss. These arguments are followed by a summary of the point-by-point answer, and by a general consideration of the problems of evaluating light fastness. There are ten references. **C—5D.**

Wetting Agents: Physico-Chemical Characterisation. E. Bartholomé and K. Schäfer. *Melliand Textilber.*, 1950, **31**, No. 7, pp. 487-491. In German. Speed of wetting is not characterised by simply determining the surface tension

as a static phenomenon, but rather by measuring the change of surface tension with time, it being assumed that molecules of the wetting agent diffuse from the interior of the solution on to the surface which is being wetted. A number of wetting agents have been investigated, and surface-tension/time graphs prepared. Relationships between molecular structure of the wetting agent and the speed of wetting have been reduced. C—**5D.**

PATENTS

Photo-electric Pressure-difference Type Flow Meter. British Celanese Ltd. B.P.639,338: Appl. and filing 17/10/1947; Publ. 28/6/1950; U.S.A. appl. 17/10/1946. In the usual types of flow-meters dependent on the creation of a pressure difference by means of a Venturi or Pitot tube or the like, the rate of flow is proportional to the square root of the pressure difference so that the manometer scale is more crowded at the lower end than at the upper. The object of the present invention is to secure a linear scale and one that may be established at a distance from the place where the rate of flow is to be measured. An opaque liquid is used in the manometer tube and this is illuminated over its whole length by a parallel beam of light (from a parabolic reflector). The light that passes through the tube above the liquid actuates a photo-electric cell and the current is amplified and recorded by appropriate means. An apertured screen is placed in the path of the beam and is so adjusted that the amount of light passing through the tube is proportional to the square root of the height of the column of liquid above the zero point that corresponds with zero pressure difference. C.

Dew Point Measuring Apparatus. Illinois Testing Laboratories Inc. B.P. 641,555: Appl. and filing 2/4/1947; Publ. 16/2/1950; U.S.A. appl. 30/9/1943. Apparatus for measuring the dew point of a condensable vapour in a gas over a wide range of temperature or pressure comprises a condensing chamber of fixed volume, a valve for admitting a sample charge of the gas at a pressure above atmospheric, a valve for rapidly venting the chamber to atmospheric pressure, and optical means for detecting the presence of condensed vapour, the effect observed being similar to that of the Wilson cloud chamber. C.

Yarn Package [Density] Testing Apparatus. Noel J. Folsom, assignor to Celanese Corporation of America. U.S. Patent 2,536,164 dated Jan. 2, 1951. C.

7—LAUNDERING AND DRY-CLEANING

Laundry Trials. ("Inverkan av bykningstid, bykningstemperatur och tvättmedelskoncentration vid maskintvätt.") Sigurd Köhler. *Särtryck ur Tvätt-Teknik*, 1950, No. 6, 4 pages (through English summary). The author studied the influence of quantity of alkali, maximum temperature, and time at maximum temperature, on the breaking strength, loss in weight, ash content and whiteness of cotton and linen fabrics after 50 and 100 washings respectively, using soap, caustic soda, sodium sesquicarbonate and sodium metaphosphate. C—**7.**

Dry Cleaning Rayons: Difficulties. Albert E. Johnson. *Rayon Synth. Text.*, 1951, **32**, No. 1, pp. 54, 58-59, 74. The operations involved in modern (dry) cleaning methods are described, and the basic types of fabric misbehaviour in these operations are outlined with particular reference to rayon fabrics. C—**7.**

Laundering: Effect on Dimensions and Elastic Properties of Certain Plain and Rib Knit Cotton Fabrics. Hazel M. Fletcher and William D. Graham. *Amer. Dyest Rept.*, 1950, **39**, No. 23, pp. 759-764. A study was made of the effect of laundering on knitted cotton fabrics. It was found that increasing the number of courses per inch substantially reduced stretching in width and shrinkage in length. Elastic properties were found to be greater in the grey than in the finished fabrics, and greater in the finished than in the finished and laundered fabrics. Details are given of the knitting of the fabrics, of the technique of determining dimensional change, and of the laundering procedures. The article is copiously illustrated with graphs. C—**7.**

Laundering: Influence on Artificial Fibres. Part I-V. Shikanosuke Yokoama. *J. Soc. Chem. Ind., Japan*, 1942, **45**, Suppl. binding, pp. 177-8, 178-9, 276, 267-8, 322-4 (in English) (through *Chem. Abstr.*, 1950, **44**, No. 16, pp. 7542[c]; No. 19, p. 9156[b]; No. 20, p. 9680[b]). The author describes the deviation of *f*

value (specific volume of colloid corpuscle, obtained by the Arrhenius equation of the viscosity), strength, and elongation of rayon cloth soaked in a water bath at 40° C. and 100° C. with caustic soda solution of *pH* 9-11·5 for seven hours. There was no change in strength or *f* value of the fibres at 40° C., but some degradation occurred at 100° C. and a *pH* of 11. Test pieces cut from the same cloth give variations depending on the direction in which they are cut. Decrease in strength of cloth after this alkali treatment seems to depend not only on the amount of chemical damage, but also on the alteration or destruction of textile construction. In investigations into the surface injury of fibres in laundering, comparison was made between the behaviour of cotton fibres and that of viscose rayon fibres. Viscose fabrics undergo shrinkage and alterations of the surface after several washings. The outer part of the thread fibres are mechanically injured, and some are cut off. Repeated washings increase the degree and quantity of rent, branched or cut-off fibres. Cotton fibres do not split lengthwise, but the skin peels off in layers. Total injury is less in severity and number than in viscose. **C—7.**

Morphology of the Cotton Fibre. I. The Primary Wall: Its Behaviour on Treatment with Alkali and/or Chlorine. W. Kling and H. Mahl. *Melliand Textilber.*, 1951, **32**, No. 2, pp. 131-136. In German. An electron-microscopic investigation into the surface structure of fibres was undertaken, in connection with the washing process. In the case of cotton, the observations made were unexpected, and a more detailed examination is reported here. It is shown that the outer wall of cotton, which consists of a wax-pectin layer, is removed by acid hydrolysis, chlorine bleaching, or treatment with organic solvent or boiling alkaline solutions, the underlying fibrils then being exposed. There appears to be no sharp demarcation between the wax-pectin layer and the fibrils, and the outer layer cannot therefore correctly be called a "cuticle". The alkaline finishing treatment attacks the fibre by removing this outer layer, and should be avoided or replaced by milder processes whenever possible. There are eleven references. **C—7.**

Printing of Soil Cloth. Carl Z. Draves and Opal L. Sherburne. *Amer. Dyest. Rep.*, 1950, **39**, No. 23, p. 771-772. This article describes the detailed method of putting together the printing paste for the General Dyestuff Corporation Printed Soil Cloth 26 (Specification 51 S.47 (INT) of the U.S. Bureau of Ships). (See also *J. Textile Institute*, 1951, **42**, A 231.) **C—7.**

Ionic and Non-Ionic Detergents: Theory and Practice. G. Schöller. *Melliand Textilber.*, 1951, **31**, No. 7, pp. 491-494. In German. The author points out the ionic character of the capillary-active non-ionic ethylene oxide polycondensation products, and discusses their relationship to cationic detergents. The article discusses, with reference to examples, the influence on the efficiency of these detergents of aliphatic groups, hydrophilic groups, ion exchange, addition of electrolytes, and the nature of aqueous solution. **C—7.**

PATENT

Asbestos-Nylon Cover Cloth [for Dry-Cleaning Presses]. Herbert E. Sunbury and Walter C. Hitchcock, assignors to U.S. Rubber Co., U.S.A. U.S. Patent 2,542,297 dated 20/2/1951. **C.**

8—BUILDING AND ENGINEERING

(A)—CONSTRUCTION AND MAINTENANCE OF BUILDINGS AND PLANT

Creep-resisting Alloys: A Survey of the Development. N. P. Allen. *Engineering*, 1951, **171**, No. 4439, pp. 235-238. **C—8A.**

Nylon: New Uses for— Anon. *Text. Wkly*, 1951, **47**, No. 1197, pp. 494, 496. Some new uses for nylon plastic in the textile industry (*e.g.* in bearings) are briefly described. **C—8A.**

Plastics in the Textile Industry. K. R. Dodd. *Text. Wkly.*, 1951, **47**, No. 1199, pp. 662, 664, 666. This is a report of an address in which some of the uses of plastics and ebonite in the textile industry, and the advantages of their use, are discussed. **C—8A.**

Titanium-Stabilised Stainless Steel. ("Corrosion.") Mars G. Fontana. *Ind. Engng Chem.*, 1951, **43**, No. 1, pp. 69A, 70A, 72A. The author claims that for most practical purposes titanium can be used to replace columbium (riobium) in stainless steel allovs. The titanium-containing alloy, however, is susceptible to

attack by 65 per cent. boiling nitric acid. A brief review is given of factors which contribute to this weakness. These include the amount of aluminium present in the titanium, and heat treatment of the alloy. C—8A.

"Automatization" in the Textile Industry. F. Bátori. *Magyar Textiltechnika*, 1950, 3, No. 2, pp. 43-45 (through *Hungarian tech. Abstr.*, 1951, No. 3, p. 17). Mechanisation in the textile industry is considered under the headings of mechanical handling and feeding devices, continuous flow processes, automatic safeguards, air conditioning, and automatic control instruments. C—8A.

The Engineering Outlook: Textile Machinery. Anon. *Engineering*, 1951, 171, No. 4442, pp. 309-311. The position of the British textile machinery industry during 1950 is reviewed. Production and export data are given and discussed. Reference is made to the report of the Anglo-American cotton spinning productivity team, in comparing the utilisation of textile machinery in Britain and America. C—8A.

Contact Corrosion in Industrial Plant. J. F. Stirling. *Pract. Engng.*, 1951, 23, No. 576, pp. 294-296. The corrosion which occurs when two dissimilar metals come into contact in the presence of an electrolyte, is discussed. The theory of the action is briefly explained and advice is given on how such corrosion may be avoided. C—8A.

The Engineering Outlook. Part XIV—The Plastics Industry. Anon. *Engineering*, 1951, 171, No. 4444, pp. 364-366. The growth of the plastics industry is briefly traced and a review is given of the present state of the British plastics industry. C—8A.

Mill Engineering. *Papers Second Canad. Text. Seminar*, 1950, pp. 181-201. The papers in this section of the second Canadian Textile Seminar deal with (1) handling and use of radioactive isotopes, (2) electronics in the textile industry, (3) importance of good quality steam in textile processing, and (4) petroleum in the textile industry. C—8A.

(C)—Steam Raising and Power Supply

Boilerhouse Efficiency. J. Scott. *Text. Whly*, 1951, 47, No. 1198, pp. 592, 594. This is a report of a lecture by the chief engineer of a firm of cotton manufacturers. C—8C.

New Boiler House at Monsall Mills. Anon. *Text. Whly*, 1951, 47, No. 1197, pp. 510-512. A brief illustrated description is given of a new boilerhouse and its equipment recently constructed at a Lancashire mill. C—8C.

Power and Heat in Textile Mills. Henry Miedendorp. *Rayon Synth. Text.* 1951, 32, No. 1, pp. 95, 97-98. This article deals briefly with diesel engines as power units for textile mills, vertical boilers (design and operation), fluid drives for textile machinery, and efficient mill heating systems. C—8C.

Scottish Textile Works: Private Generation Hydro-Electric Scheme. Anon. *Elect. Rev.*, 1951, 148, No. 3822, pp. 367-369. A brief illustrated report is given of a modernisation and electrification scheme that is being carried out for a Scottish firm engaged in the cotton industry. The electrical power is to be supplied by a specially constructed hydro-electric station. C—8C.

Textile Finishing Plant Completes Sixth Major Expansion. J. C. Porter. *Ind. and Pwr*, 1950, 58, May, pp. 88-90, 158 (through *Fuel Abstr.*, 1950, 8, No. 5, p. 86). A description is given of the installation of a pulverised coal-fired boiler of 150,000 lb./hr. steam capacity and a 5,000 kW. turboset for a throttle pressure of 230 p.s.i. with extraction at 100 and exhaust at 20 p.s.i. Improvement in plant operation, and savings expected, are outlined. C—8C.

Power Production and Wastage in the Textile Mill. Erich Köster. *Melliand Textilber.*, 1951, 32, No. 1, pp. 37-38; No. 2, pp. 127-130. In German. The cost of steam production, and power wastage of all kinds, are worthy of more attention than is usually given to them, since they must be included in any reliable production cost calculation. Losses of heat can occur in several ways; fuel may be unsuitable for the particular type of boiler furnace; incorrect combustion conditions may lead to excessive soot formation, which represents loss not only of potential fuel, but also of heat already generated; fly-ash may also be a source of loss. Radiation and insulation losses are difficult to determine, but they

appear to have some relation to the demand on the boiler. Corrective procedures are indicated. Average steam-consumption figures for various textile machines are presented for comparison. C—8C.

(D)—Power Transmission

V-Belt: Proper Treatment Increases Life. Tyler G. Hicks. *Text. World*, 1951, 101, No. 1, pp. 124-125. Some V-belt troubles and their causes and remedies, are described. C—8D.

Belt Pulleys: Use. P. W. Peel. *Text. Merc.*, 1951, 124, No. 3231, pp. 412, 415. Information is given on how to specify pulley dimensions, and on the effect of crown on power transmitted by pulleys. C—8D.

Automatic Belt Dresser. Anon. *Text. Industr.*, 1950, 114, No. 12, pp. 145, 147. The device described consists of a pair of brushes which are placed in contact with the inner and outer surfaces of the belt. The brush on the outer surface is fitted with a bottle containing a belt preservative. The belt is thus kept clean and dressed continuously whilst it is running. C—8D.

Electric Power Drives: Installation and Alignment. P. W. Peel. *Text. Whly*, 1951, 47, No. 1202, pp. 870, 872, 874. C—8D.

Canvas Belting: Treatment. P. W. Peel. *Dyer*, 1951, 105, No. 6, pp. 379, 381. 379, 381. Some advice is given on the installation and proper working conditions of stitched canvas belting drives. C—8D.

(F)—Lighting

Wiring Systems. Anon. *Text. Mfr.*, 1951, 77, February, pp. 78-81; March, pp. 121-123. This article on electrical systems for textile mills deals with the choice and installation of conduit systems, lead sheathed and armoured cables, mineral-insulated metal-sheathed cables, emergency lighting and cable colours, and sub-circuits. Voltage drop and current-carrying capacity of cables are also considered. C—8F.

(G)—Heating, Ventilation and Humidification

Controlled Humidification in Woollen and Worsted Mills. H. V. Tetlow. *Text. Mfr*, 1951, 77, 175-178, 202. Details are given of a humidifying system designed and built to deal with an area of 168,800 cu. ft., serving 8 sets of scribbling and carding and 10 storage bins, each holding 5,000 lb. of wool, and processing an average of 320 lb. of wool per hour. W—8G.

Atmospheric Pollution. Louis C. McCabe. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 83A-84A. Reference is made to some measurements of the sulphur dioxide content of the atmosphere over the city of St. Louis, U.S.A. Results obtained in 1936-37 and 1950 are compared, and the reduction in the concentration of sulphur dioxide shown by the 1950 figures is attributed to the use of fuels having a low sulphur content. C—8G.

Humidity Control in Textile Mills. Leo Walter. *Text. Merc.*, 1951, 124, No. 3230, pp. 361-362, 364, 367. Some information is presented on the conversion of hand-operated, or otherwise out of date humidification plants, to modern automatic systems. C—8G.

Aerosol Indicator for Rapid Testing of Dust Content of Air. G. Ljunggren and T. Wilner. *Tekn. Tidskr.*, 1950, 80, 10th June, pp. 551-552; abstra. in *Engrs' Dig.*, 1950, 11, September, pp. 309-310, 320, 326 (through *D.S.I.R. mthly Summary*, 1950, 18, No. 7, p. 31). This apparatus, battery operated and easily portable, will count particles down to 0·5 μ suspended in air. It can be used both for rapid general dust count exploration, and for more detailed localised study, and it is suitable for rapid testing of ventilation systems. C—8G.

Air Completely Dust-Free: Absolute Filter. Anon. *Chem. Tr. J.*, 1950, 126, 2nd June, p. 1289; *Industr. Bull., A. D. Little Inc.*, 1950, May, p. (265) (through *Fuel Abstr.*, 1950, 8, No. 5, p. 150). A new filter is described in which sheets of soft, felt-like paper, containing sub-microscopic asbestos fibres, are folded and fitted in to a wooden frame to obtain a large surface in a small space. Single units can handle up to 1,000 cu. ft. per minute of air containing about 20,000 particles per cu. in. These filters, which were originally developed to catch radio-active dust, will shortly be available for cleaning gases or air from which the coarser particles have been removed by conventional means. C—8G.

Air Conditioning Services for New Textile Mill. F. H. Slade. *Text. Mfr.*, 1951, 77, February, pp. 55-58. An illustrated account is given of the air conditioning system installed in the winding room, weaving shed, and warehouse of a new textile mill. C—8G.

(H)—Water Purification

Water and Waste Water Disposal. Hansjörg Schmassmann and Walter Schmassmann. *Ciba-Rundschau*, 1950, No. 91, June, pp. 3352-3377. In German. This is a collection of papers on sources of water, water treatment, and treatment and disposal of waste water. A bibliography of 36 references concludes the final paper. (See *J. Textile Institute*, 1951, 42, A 177 of English version.) C—8H.

(I)—Waste Disposal

Industrial Wastes. Harold R. Murdock. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 79A-80A. The formation of hydrogen sulphide by the action of anaerobic bacteria on waste sulphite liquors in river water, has been prevented by the addition of large quantities of sodium nitrate to the water. C—8I.

Experiments on the Treatment of Various Industrial Waste Waters and Their Constituents by the Magdeburg P Process. E. Nolte and H.-J. Baudt. *Beitr. Wass. Abwass. Fischereichem.*, 1947, pp. 15-35 (through *Water Poll. Abstr.*, 1950, 23, No. 3, p. 65). The Magdeburg P process was used to treat waste waters from various works, including among many others cellulose factories and starch factories. The results show that this process can be used for treating, without domestic sewage, a great variety of industrial waste waters. C—8I.

Industrial Waste Waters and the P Process. H.-J. Meyer. *Beitr. Wass. Abwass. Fischereichem.*, 1947, pp. 36-45 (through *Water Poll. Abstr.*, 1950, 23, No. 3, p. 66). Further investigations are described (see Abstracts No. C.1951/1688 and 1690) on the use of the Magdeburg P process for treating industrial waste waters of various types, including waters from textile and cellulose factories. C—8I.

Plants for Treatment of Waste Waters Containing Phenol by the Magdeburg P Process: Design and Calculations. E. Nolte. *Beitr. Wass. Abwass. Fischereichem.*, 1947, pp. 3-14. The Magdeburg P process is based on the fact that phenol is decomposed by bacteria found in soil, air and water, and that this biological action requires oxygen and mineral nutrient salts. The author describes the experimental development of a treatment plant based on the Haworth activated-sludge tank, but with submerged paddles and aeration through porous plates. Large-scale plants installed at various works are described, and methods of calculating the size of plant required are discussed. C—8I.

Industrial Waste Disposal: Treatment and Utilisation of Textile Wastes. S. Balusandaram and V. Subrahmanyan. *Science and Culture*, 1950, 15, pp. 277-9 (through *Chem. Abstr.*, 1950, 44, No. 11, p. 5045[d]). The authors describe a method of treating textile-mill wastes which enables a clear waste liquid to be pumped into sewers without forming sludge or gas, or affecting normal oxidation changes occurring in the sewage. This sewage mixture was found to have no harmful effect on crops (sugar cane) when it was applied to farm land. C—8I.

Synthetic Detergents: Influence on Sewage Purification. J. Hurley. *Surveyor Lond.*, 1950, 109, pp. 393-395 and 405-407 (through *Water Poll. Abstr.*, 1950, 23, No. 6, p. 135). The article describes experiments at the Wolverhampton Sewage Disposal Department at Coven Heath, in which Teepol was added to the flow through one half of the works, and the other (identical) half of the works was used as a control. The Teepol had no perceptible effect on any stage of treatment, or on the quality of the final effluent. C—8I.

Self-Purification of Sewage-Polluted Streams. W. A. Moggio. *Proc. 12th Ann. Short Course, Wat. & Sewerage Pl. Superintend. & Dp.*, 1949, *La St. Univ.*, 1950, pp. 15-20 (through *Water Poll. Abstr.*, 1950, 23, No. 4, p. 96). A description is given of the physical, chemical, and biological processes which help to effect purification in a polluted stream, and of the four distinguishable regions of a polluted stream below the point of entry of the sewage. C—8I.

Synthetic Detergents and Sewage Processing. Part I. Introduction. M. Elton. **Part II. Sedimentation of Sewage, Etc.** A. Sciver. **Part III. Production of Methane from Sewage Sludge.** P. N. Degens, H. v.d. Zee., J. D. Kommer and A. H. Kamphuis. **Part IV. Processing of Sewage Containing Wool Scouring Liquors, Etc.** H. C. Evans and P. A. Winsor. *J. & Proc. Inst. Sewage Purif.*,

1949, Part III, pp. 351-370 (through *Water Poll. Abstr.*, 1950, 23, No. 6, p. 134). Part I outlines the development of synthetic detergents and describes the various types now produced. The author discusses the possible interference with sewage processes, that might result from the growing use of detergents. It is estimated that by 1952 the average concentration of synthetic detergents in sewage will be of the order of 50 parts per million. Part II describes an investigation into the effect on the sedimentation of sewage of adding sodium secondary alkyl sulphates. Addition of 40 p.p.m. had a slight adverse effect, and this effect was greater when 100 p.p.m. were added. Experiments described in Part III lead to the conclusion that neither methane fermentation nor filterability of the digested sludge is affected when the concentration of detergent is less than 500 p.p.m. The use of synthetic detergents for scouring wool may affect the treatment of the effluents before their discharge from the mills, and the recovery of grease by acid cracking at the sewage-treatment plant. Part IV discusses methods of overcoming these adverse effects. (See *J. Textile Institute*, 1951, 42, A 32.) C—81.

PATENT

Air Conditioning Plant. Carrier Engineering Co. Ltd. B.P.641,712: Appl. and filing 13/2/1946; U.S.A. appl. 12/8/1939. B.P.641,713: Appl. and filing 15/5/1946; U.S.A. appl. 28/6/1945. B.P.641,714 and 641,715: Appl. and filing 16/7/1946; U.S.A. appl. 26/7/1945. B.P.641,767, 641,768, 641,769 and 641,770: Appl. and filing 13/2/1946; U.S.A. appl. 12/8/1939. All published 16/8/1950. These eight inventions relate to plant for supplying the various rooms of office buildings and similar large establishments with conditioned air at all seasons of the year from a central conditioner (including cooling system for summer), the distribution conduits being relatively small, that is, about 6 inches in diameter. B.P.641,768 covers temperature-indicating devices for the guidance of the operator of the plant, and B.P.641,770 relates to valve mechanism for controlling fluid flow. C.

9—SCIENCE

Structure and Development of the Cotton Fibre. E. A. Flint. *Biological Rev.*, 1950, 25, p. 414-434. This botanical review deals with the cuticle, primary and secondary walls, and cell lumen of the fibre; pits and pores in the cell walls; the development of the fibre, and the theory of the deposition of cellulose by ellipsoidal particles. Much space is given to the secondary wall, and under this heading the author considers the "winding", or first layer, the subsequent layers, reversals of the spirals of the fibrils of all these layers, growth rings, and convolutions. There is a comprehensive summary, and three pages of references. C—9.

Polypeptide Chain Configurations in Crystalline Proteins. Sir Lawrence Bragg, J. C. Kendrew, and M. F. Perutz. *Proc. Roy Soc.*, A, 1950, 203, No. 1074, pp. 321-357. Previous speculations about the configuration of the polypeptide chain are outlined with reference to α-keratin, haemoglobin, and myoglobin. A systematic survey is made of chain models which conform to established bond lengths and angles, and which are held in a folded form by N-H-O bonds. Models which depart widely from observed dimensions are excluded, and an attempt is made to reduce the number of possibilities still further by comparing vector diagrams of the models with Patterson projections based on X-ray data. This form of evidence favours chains of the general type proposed for α-keratin by Astbury, and as a further test these chains are placed in the myoglobin structure, and the calculated and observed intensities of X-ray reflexions compared. It is emphasised, though, that the evidence is still too slender to enable definite conclusions to be drawn. C—9.

Chromatography: An Automatic Constant Volume Fraction Collector. A. R. Gilson. *Chem. & Ind.*, 1951, No. 10, p. 185. An automatic fraction-collecting device for use in chromatography is described. It is controlled by an "electronic capacity switch" and delivers a constant volume of liquid. C—9.

Choice of Chemical Balance. George F. Hodsman. *Chem. Prod.*, 1950, 13, No. 13, pp. 475-477. Some information is given as a guide to the choice of a chemical balance. C—9.

Atomic Weights Table—1948 (with Comments). ("Bemerkungen zur Tabelle der Atomgewichte.") G. Rienäcker. *Z. anorg. Chem.*, 1950, **261**, Nos. 1-2, 130-132. A table of atomic weights, based on the latest available report (C. 1948) of the International Atomic Weights Commission, is presented. Selected notes on some recent determinations are also included. C—9.

Binary Systems of Titanium with Nitrogen, Carbon, Boron, and Beryllium. ("Über die binären Systems des Titans mit den Elementen Stickstoff, Kohlenstoff, Bor und Beryllium.") Paul Ehrlich. *Z. anorg. Chem.*, 1949, **259**, Nos. 1-4, pp. 1-41. Carbides, nitrides, borides of titanium and alloys with beryllium were prepared by means of the sinter process. The products were subsequently examined, principally by means of X-rays and pyknometer density determinations. C—9.

Differences in Chemical Behaviour of the Hydrates of Sodium Trimetaphosphates. ("Über das chemisch unterschiedliche Verhalten der Hydrate des Natriumsabzes der Trimetaphosphorsaure, $Na_3(P_3O_9)\cdot 6H_2O$ und $Na_3(P_3O_9)\cdot 1H_2O$. Erich Thilo and Ulrich Hauschild. *Z. anorg. Chem.*, 1950, **261**, Nos. 5-6, pp. 324-330. The hexa- and mono-hydrates of sodium trimetaphosphate, $Na_3(P_3O_9)$, behave differently in that the former is readily converted to the anhydride, whereas the latter loses its water of crystallisation only on effecting a chemical change of the anion; that is, intermediate production of chain-structured triphosphate, pyrophosphate and orthophosphate radicals can be observed before the anhydrous trimetaphosphate is obtained. An explanation of the phenomenon is suggested. C—9.

Salt Complexes Containing Phenanthrolin. ("Phenanthrolinhaltige Komplexsalze mit ein- und zweiwertigen Zentralatomen.") P. Pfeiffer and Br. Werdelmann. *Z. anorg Chem.*, 1950, **261**, Nos. 3-4, pp. 197-209. The structure of salt-complexes containing phenanthrolin have been systematically investigated for the cases where the central atom is monovalent, (hydrogen, silver, and thallium), and divalent, (manganese, iron, cobalt, copper, and tin). It is shown that hydrogen and manganese can have co-ordination numbers of 4 and 8 respectively. C—9.

Syntheses of Talc and Serpentine. ("Synthesen im System $MgO/SiO_2/H_2O$.") W. Noll. *Z. anorg. Chem.*, 1950, **261**, Nos. 1-2, pp. 1-25. Hydrothermal syntheses of talc and serpentine under various conditions have been carried out, and the products examined by means of X-rays, the electron-microscope, the optical microscope and by observations of partial thermal decomposition. C—9.

Titanium Developments. M. Schofield. *Chem. Prod.*, 1950, **13**, No. 12, pp. 444-448. An account is given of the early work on the preparation of titanium, old and new methods of extraction of this metal, its properties, and the properties and uses in the cosmetics industry of titanium oxide. Several photographs illustrating the production of titanium and titanium oxide are presented. C—9.

"Isopestox": A New Insecticide. Pest Control Ltd. *Chem. & Ind.*, 1951, No. 7, p. 123. The discovery of a new systemic insecticide, claimed to be a little more than twice as toxic as DDT, is announced. This new compound has been called "Isopestox", and chemically is bis *iso*propylaminofluorophosphine oxide. C—9.

Fibre Structure: Modern Views. A. J. Hall. *Text. Merc.*, 1951, 124, No. 3229, pp. 321, 322, 325, 327. A brief review is presented of modern concepts of the structure of cellulosic fibres. A simplified description is given of this structure in terms of the crystalline and amorphous characters of the cellulose fibre. C—9.

Synthesis of the Amino-Acids: Recent Developments. R. O. Atkinson, C. Okrent, and C. Simons. *Chem. & Ind.*, 1951, No. 7, pp. 118-122. After a brief mention of the preparation of optically active amino-acids from natural sources, eight general methods for the synthesis of DL-amino-acids are outlined. These methods are of more recent development than the classical syntheses. Particular methods for the synthesis of DL-methionine, DL-threonine, and DL-tryptophane are considered in slightly greater detail. Forty-one references are given. C—9.

The Fats: 1900-1950. An Essay in Historical Chemistry. T. P. Hilditch. *Chem. & Ind.*, 1951, No. 9, pp. 154-159. The third Leverhulme Memorial Lecture (of the Society of Chemical Industry) is presented in full. C—9.

The Oxidation of Aldoses by Hypoiodous Acid: Part III. Comparison of the Rates of Oxidation of α- and β-D-Glucose. K. D. Reeve. *J. Chem. Soc.*, 1951, January, pp. 172-177. β-D-glucose is shown to be oxidised by hypoiodous acid, under certain conditions (*pH* 9·8), at least 25 times as fast as its α-isomer, but the simultaneous mutarotation tends to equalise the two rates as oxidation proceeds. Outside the *pH* range 7·6-11·8, mutarotation is much faster than oxidation, and the α- and β-forms of D-glucose are oxidised at equal rates. C—9.

The Stepwise Degradation of Peptides. H. G. Khorana. *Chem. & Ind.*, 1951, No 7, p. 129. A simplified procedure for the determination of the order of amino-acids in polypeptides is described. C—9.

Absorption and Humidification. Robert L. Pigford. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 41-46. Recently published work on absorption and humidification is reviewed and a bibliography of nearly 100 references is given. C—9.

Adsorption. B. L. Harris. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 46-55. This is a review of recent work on various aspects of adsorption (including surface area studies, chromatography, liquid phase adsorption, preparation and properties of various adsorbents, and kinetics of adsorption) with over 300 references. C—9.

Centrifugation. James O. Maloney. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 55-58. This is a review of recent literature on "centrifugation", and covers fundamental studies, and new equipment, applications, and techniques. Eighty-two references are given. C—9.

Crystallisation. C. S. Grove and J. B. Gray. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 58-62. This review of recent work on crystallisation covers nucleation and rate of growth, effects of additives on crystal growth, work on oriented overgrowths, phase equilibria, and industrial applications. Over 100 references are cited. C—9.

Drying. Samuel J. Friedman. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 70-75. Recent literature on drying is reviewed. The techniques covered include infra-red drying, spray drying, sublimation drying, and high frequency drying. A bibliography of 185 references is given, of which over 30 deal specifically with textile drying. C—9.

Filtration. Shelby A. Miller. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 85-89. Recently published work on filtration is reviewed. Aspects covered include theory, equipment, methods and applications (with several references to the filtering of viscose spinning solutions), filter media, and laboratory apparatus and methods. There are 151 references. C—9.

Ion Exchange. Robert Kunin. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 102-108. This is a review of recent literature on ion exchange. The aspects covered include theory, water softening, deionisation, separations, analytical applications, and apparatus. A bibliography of over 320 references is given. C—9.

Interfacial Tension and Membrane Tension from Pendent Drop Shape, with Special Reference to Emulsions. Sybil Mathews. *J. Oil Col. Chem. Ass.*, 1951, 34, January, pp. 1-20. The theory of interfacial tension is summarised, with special reference to gelling at an interface and the formation of membranes. The effects of certain pigments on the stability of linseed oil/glue solution emulsions are noted. An apparatus is described for measuring oil/glue solution interfacial tensions by means of the pendent drop shape method. Some experiments that have been carried out with this apparatus on the physical properties of envelopes of oil drops suspended in glue solution are outlined. The physical state of the membrane which forms on an oil drop pendent in glue solution is discussed. C—9.

Review of *pH* Instrumentation. Anon. *Chem. Prod.*, 1950, 13, No. 13, pp. 478-481. After a brief discussion of the principles of *pH* measurement (in particular, methods of measuring E.M.F.), some modern *pH* meters are described and illustrated. C—9.

The Cataphoresis of Spherical, Solid Non-conducting Particles in a Symmetrical Electrolyte. F. Booth. *Proc. Roy. Soc.*, **A**, 1950, 203, No. 1075, pp. 514-533. A theoretical analysis is given of the motion of solid non-conducting

charged spheres through symmetrical electrolytes, under the action of an applied electric field. It is shown that the steady velocity of translation U may be written in the alternative forms

$$U = \sum_{1}^{\infty} c_v Q^v = \sum_{1}^{\infty} d_v \zeta^v,$$

where Qe denotes the charge on a sphere and ζ the zeta-potential; the coefficients c_v and d_v are proportional to the applied field strength and depend upon the radius of the particle and the concentrations, valencies, and mobilities of the ions in the electrolyte. A general method is given for calculating c_v and d_v and the first four coefficients of each series found explicitly. Some quite general properties of the c_v are also deduced. (Author's abstract.) C—9.

The Electroviscous Effect for Suspensions of Solid Spherical Particles. F. Booth. *Proc. Roy. Soc.*, A, 1950, **203**, No. 1075, pp. 533-551. A theoretical analysis is made of the electrokinetic phenomenon known as the "electroviscous effect". A general formula is given for the effective viscosity of a suspension of solid, spherical, charged non-conducting particles in an electrolyte. The increase of the effective viscosity due to the surface charge and the ionic double layer surrounding the particles is determined by a modification of Einstein's method for the calculation of the viscosity of solid suspensions. A comparison with previous theoretical work is made. C—9.

A Spectrophotometer for Reflectance Measurements in the Visible Spectrum. M. J. Richards. *J. Oil Col. Chem. Ass.*, 1951, **34**, January, pp. 21-29. A spectrophotometer is described which is suitable for measuring the apparent spectral reflectance of printed or decorated surfaces. The simplified design enables the instrument to be built without special tools or skill. C—9.

A Precision Electronic Tachometer. S. W. Punnett and H. G. Jerrard. *Electronic Engng*, 1951, **23**, February, pp. 55-60. Details and circuit diagrams are given for the construction of an electronic tachometer that will measure speeds of revolution to 0·05 per cent. accuracy. C—9.

Dispersion of Ultrasonic Velocity in the Liquid Higher Fatty Acids. Y. Wada, S. Shimbo, and M. Oda. *J. Acoust. Soc. Amer.*, 1950, **22**, No. 6, p. 880. A marked dispersion of ultrasonic velocity has been detected in liquid palmitic acid only near the melting point. Similar phenomena have been found also in the cases of stearic and lauric acid. C—9.

Fluid Dynamics. Max Leva and Murray Weintraub. *Ind. Engng Chem.*, 1951, **43**, No. 1, pp. 90-99. This comprehensive review of recent literature on fluid dynamics covers friction in pipe flow, fluid and heat flow, two-phase flow, packed beds, fluidisation, viscosity, instruments and measurement, and mechanical, mathematical, and theoretical aspects. A bibliography of over 340 references is given. C—9.

Heat Transfer. George T. Skaperdas. *Ind. Engng Chem.*, 1951, **43**, No. 1, pp. 99-102. This is a survey of recent work on heat transfer with 86 references to the literature. C—9.

Suspensions: Studies of Viscosity and Sedimentation. Part 1—The Viscosity of Suspension of Spherical Particles. S. G. Ward and R. L. Whitmore. *Brit. J. Appl. Phys.*, 1950, **1**, No. 11, pp. 286-290. After a brief review of the relative viscosity/volume concentration relationships which have been suggested for suspensions of smooth spheres, the results of new experimental work on rigidly defined systems of methyl-methacrylate spheres suspended in aqueous solutions are described and discussed. Thirty-two references are given. C—9.

Suspensions: Studies of Viscosity and Sedimentation. Part 2—The Viscosity and Sedimentation of Suspensions of Rough Powders. S. G. Ward and R. L. Whitmore. *Brit. J. Appl. Phys.*, 1950, **1**, No. 12, pp. 325-328. Viscosity measurements have been made on suspensions of rough methyl-methacrylate powders in aqueous solutions. The viscosity increases at all concentrations as the particle size is reduced. This is explained on the assumption that the individual particles behave as if surrounded by a layer of immobile liquid, held in the irregularities of their surfaces. These conclusions have been confirmed by sedimentation experiments on the suspensions. C—9.

Recording Instruments: The Effect of Pen-to-Paper Friction. M. J. Tucker. *Electronic Engng*, 1951, **23**, February, pp. 61-63. The results are presented of an investigation of the effect of friction between the pen and chart on measurements recorded by automatic instruments. The determination of the static friction constant is considered and two methods are indicated. An equation for calculating the error at any point on a recording is derived and an appropriate solution for the general use of a driving force is given. C—9.

Cloud of Falling Droplets: Lateral Diffusion. D. R. Davies. *Proc. Camb. Phil. Soc.*, 1950, **46**, Part 3, pp. 500-507. A theory of eddy diffusion (O. G. Sutton, 1932) is used to predict the dispersion of a cloud of falling droplets released from a point source at great height above the surface of the earth. Some experimental and theoretical values for the widths of ground areas covered by liquid drops released from various heights are compared. C—9.

Elasto-visco-plastic Bodies: Mechanics. Part I and II. A. I. Gubanov. *Zhurn. Tekhnich. Fiziki*, 1949, **19**, No. 1, pp. 34-42, 43-61. I deals with the generalised equations of motion, and II is concerned with displacement. (A translation of the paper is available in the Science Museum Library.) C—9.

The Unsteady Flow of Viscous Incompressible Fluid Inside an Infinite Channel. L. Sowerby. *Phil. Mag.*, 1951, **42**, February, pp. 176-187. The problem considered is the motion of viscous incompressible fluid inside an infinite wedge-chaped channel of angle. π/n (n is an integer $\geqslant 1$), the channel being started suddenly from rest with uniform velocity in the direction of its length. The solution is obtained by considering a suitable Green's function for the heat conduction equation. Particular reference is made to the right-angled channel ($n=2$), the results being extended, by Rayleigh's hypothesis, to include some discussion of the steady flow inside a right-angled channel having leading edges normal to the incident stream. From this, also, an approximation is derived for the frictional force on the interior of a finite rectangular channel of suitable dimensions. C—9.

Radioactive Isotopes: Use. K. Fearnside. *Chem. Prod.*, 1950, **13**, No. 12, pp. 449-453. The production of radioactive isotopes in the atomic pile is briefly discussed, and some uses of such isotopes are described. These include "tracers" in organic chemical research and in analysis, inspection instruments (*e.g.* the Beta thickness gauge), static eliminators, and other industrial uses. C—9.

A Simple Analogue Computor for Fourier Analysis and Synthesis. J. H. Bowen and T. E. Burnup. *Electronic Engng*, 1951, **23**, February, pp. 67-69. Details are given of a circuit (containing only standard components) which can be used to solve integrals encountered in Fourier analysis. Applications of the apparatus are briefly described. C—9.

Construction of Circular Nomographs with Hyperbolic Coordinates. Walter H. Burrows. *Ind. Engng Chem.*, 1951, **43**, No. 1, pp. 158-159. The construction of circular nomographs having hyperbolic coordinates is described. An example of the use of such a nomograph is given. C—9.

Probability Levels: Non-normal Populations. ("Caractéristiques liant l'impression d'une estimation de la moyenne à la probabilité minimum avec laquelle on peut garantir cette imprécision lorsque l'irrégularité est donnée.") Leon Goossens. *Rayonne*, 1951, **7**, No. 1, pp. 87-89, 91, 93-95, 97-100. The author examines the errors introduced when probability levels based on the normal law are applied to non-normal distributions, and finds that, in general, the errors are small. Where a wrong decision might involve the rejection of costly material, however, he recommends that the true form of the distribution should be established, or the Camp-Meidell or Tchebycheff inequalities used. C—9.

The Uniqueness of the Solution of the Equation of Heat Conduction. J. L. B. Cooper. *J. London Math. Soc.*, 1950, **25**, No. 99, pp. 173-180. The uniqueness is established of the solution of the equation of heat conduction in an infinite rod with given initial conditions. The method used involves a Fourier transform taken over a finite region. It is shown how this method applies to parabolic equations. C—9.

Silk Worms: The Effect of Colchicine, Podophyllin and Acenaphthene on—. L. J. Havas and J. Kahán. *Arch. Biol. Hung.*, 1948, **18**, pp. 117-31 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 1255[b]). The article records effects of stimulation

and inhibition observed in silkworm eggs treated with the above substances. The effects of colchicine were generally favourable, those of acenaphthene unfavourable. C—9.

Biosynthesis of the Monosaccharides. L. Hough and J. K. N. Jones. *Nature*, 1951, **167**, No. 4240, pp. 180-183. Recent work on the photosynthesis of carbohydrates is reviewed. Three possible processes for the formation of pentoses are considered briefly: decarboxylation of hexuronic acids, polymerisation of formaldehyde, and the aldol condensation of glyceraldehyde and glycollic aldehyde. The biosynthesis of heptoses, deoxy sugars, methyl sugars, and branched chain sugars are also dealt with. A bibliography of 36 references is given. C—9.

Paper Chromatography: Application to the Separation of Non-Volatile Carboxylic Acids. F. Brown. *Nature*, 1951, **167**, No. 4246, p. 441. Several non-volatile carboxylic acids have been separated by paper chromatography using ethyl alcohol-ammonia as the mobile phase. Separations can be adjusted for various acids by altering the water content of the solvent. C—9.

A Modified Iodine Pentoxide Method for the Determination of Carbon Monoxide. G. A. Grant, Morris Katz, and R. L. Haines. *Canad. J. Tech.*, 1951, **29**, No. 1, pp. 43-51. An improved iodine pentoxide method for the determination of low concentrations of carbon monoxide (0·01 to 0·0001 per cent.) is described. The iodine liberated is estimated by means of a spectrophotometer. C—9.

Silver Nitrate as a Test for Ortho and Para Dihydric Phenols. Bernard S. Wildi. *Science*, 1951, **113**, No. 2929, p. 188. It has been observed that aromatic compounds containing two or more phenolic hydroxyl groups, being ortho or para to each other, readily react with neutral silver nitrate in alcoholic solution (to produce a silver mirror), whereas those having a single phenolic hydroxyl group, or two or more such groups meta to each other, do not react. Substances which form insoluble silver salts in the alcoholic solution do not give a positive test. The results for various compounds that have been tested are tabulated. C—9.

Trace Metals in Cotton Fibre. D. C. Heinzelman and R. T. O'Connor. *Text. Res. J.*, 1950, **20**, No. 11, pp. 805-807. Spectrochemical analysis for trace metals has been carried out on the lint of 8 varieties of cotton grown in one location and one variety grown in 13 locations. Results for the copper, iron, and manganese contents of the fibres are given. C—9.

A Volume Actuated Fraction Collector for Use in Chromatography. R. A. Grant and S. R. Stitch. *Chem. & Ind.*, 1951, No. 12, p. 230. A device for collecting fractions of approximately equal volume from chromatographic columns is described and illustrated. It is designed for use in connection with the turntable sample-tube charging apparatus of Hough, Jones, and Wadman (see *J. Textile Institute*, 1950, **41**, A 90). C—9.

Raw Cotton Fibre: Demonstration of the Presence of a Galacto-Araban. John D. Guthrie and Wilson A. Reeves. *Text. Res. J.*, 1950, **20**, No. 12, pp. 859-861. Experiments are described which indicate that part of the non-cellulosic material in natural cellulose fibres consists of a polysaccharide having the properties of a galacto-araban. C—9.

Alginates: Extraction from Canadian Seaweeds. R. C. Rose. *Canad. J. Tech.*, 1951, **29**, No. 1, pp. 19-28. The suitability of five species of Canadian seaweed as sources of alginates has been evaluated, and a laboratory method for the preparation of purified sodium alginate developed. C—9.

Bones: Structure and Composition. Anon. *Abstr. (Bull.) Brit. Gel. Glue R.A.*, 1950, **1**, No. 5, pp. 1-7. This article is a review of the literature, and touches on the macro structure of bones; types of bone tissue; the general histology of bone tissue; formation and destruction of bone; arrangement of permanent histological elements within compact bone; and the chemical composition of whole bones, components of whole bones, and tissues associated with bones. There are diagrams showing the distribution of tissues in a limb bone, permanent elements of bone tissue, and the arrangement of fibrils in a Haversian system. Sixteen references are given. C—9.

Amino Acids: Synthesis from Substituted Cyanoacetic Esters. Paul E. Gagnon, Paul A. Boivin, and Hugh M. Craig. *Canad. J. Chem.*, 1951, **29**, No. 1, pp. 70-75. Ten amino acids have been synthesised from substituted cyanoacetic

esters. The esters (formed by condensation of ethyl cyanoacetate with alkyl or arylalkyl halides) were converted to hydrazides by treatment with hydrazine hydrate. Diazotisation of the hydrazides gave rise to azides which were transformed into urethanes by refluxing with absolute alcohol. The urethanes on hydrolysis yielded the amino acids. C—9.

The Chemical Attack on Polymeric Materials as Modified by Diffusion. Sidney M. Katz, Edward T. Kubu, and James H. Wakelin. *Text. Res. J.*, 1950, **20**, No. 11, pp. 754-760. The effect of a relatively rapid diffusion of a chemical reagent into a cylindrical fibre on the over-all rate of reaction (between the polymeric medium and the chemical reagent) is considered, and an equation is derived. The equation is applicable both to the extent of the reaction and to the decay of stress in the polymer, provided that a linear relationship between stress and extent of reaction is assumed. C—9.

Donnan Equilibria [in Synthetic Polymer Solutions]. Mme. F. Boyer-Kawenoki. *C.R. Acad. Sci., Paris*, 1950, **230**, pp. 747-749 (through *Brit. Abstr.*, A I, 1950, August, p. 503). The Donnan distribution of sodium chloride across a collodion membrane was investigated in the presence of polyacrylic acid, its sodium salt, and polyvinylamine chloride. Although the results agree qualitatively with theory, it is impossible to establish exact quantitative agreement in the absence of activity data. C—9.

Effect of Low Polymer upon the Intrinsic Viscosity of a High Polymer. D. Cleverdon. *Nature*, 1951, **167**, No. 4240, pp. 196-197. An investigation has been carried out to test one of the assumptions on which the concept of viscosity average molecular weight (of Flory*) is based. This concerns the effect of solvent and of other molecular species present in the solution. The viscosities of solutions of different concentrations of a high-molecular weight polystyrene have been measured in (i) benzene, (ii) a 0·6 per cent. solution in benzene of a low molecular weight polystyrene, and (iii) a 1·0 per cent. solution of the low-molecular weight polystyrene in benzene. Viscosity/concentration curves were plotted and the zero-concentration intercept (intrinsic viscosity) obtained in each case. It was found that each of the three solutions gave different results, showing that the presence of a low polymer influences the measured viscosity molecular weight of a high polymer. This disproves one of Flory's basic assumptions. (*See *J. Textile Institute*, 1943, **34**, A 47.) C—9.

Factors Which Influence the Kinetics of Cellulose Reactions. Emil Heuser. *Text. Res. J.*, 1950, **20**, No. 12, pp. 828-837. An attempt is made to classify the main reactions of cellulose, such as esterification, etherification, and oxidation, according to four "possibilities", which are derived from the physical and chemical reactivities of the hyroxyl groups. These possibilities of reaction are discussed and examples are given. The hydrolysis of cellulose is considered as a special case of one of the possibilities. Forty-one references to the literature are cited. C—9.

Physico-Chemical Experiments on Fractions of Dextran. B. Ingelman and M. S. Halling. *Arkiv. Kemi*, 1949, **1**, No. 10, pp. 61-80 (through *Brit. Abstr.*, A III, 1950, August, p. 1235). Comparatively homogeneous fractions of dextran, obtained from partly hydrolysed dextran solutions by fractional precipitation with ethanol, were investigated. Data from viscosity, ultra-centrifuge, diffusion, and adsorption experiments are given, and the molecular weights of representative fractions calculated. C—9.

Dyes and Light. Elisabeth Stromberg. *ICOM News* (Paris), 1950, **3**, No. 3, Appendix, pp. 1-4 (through *Chem. Abstr.*, 1951, **45**, No. 3, pp. 1347^{l}-1348^{b}). Comments are made on a display demonstrating the destructive effects of light on dyed materials, especially textiles, shown in Stockholm in 1950. Most of the exhibits date from before 1850, when synthetic dyes were discovered. In addition to affecting the dyes, sunlight reduces the tearing strength of fabrics. Times necessary to reduce tearing strength of fibres by 50 per cent. by exposure to full sunlight without any protection are, cotton 940 hours, flax 990, jute 400, wool 1,200, chrome-dyed wool 1,900, and cultivated silk 200. The thickness of the material affects the tearing strength. Most of the old-time "natural colours" showed less than satisfactory light-fastness by modern standards. Fading is caused by artificial light as well as by sunlight, but it is usually slower with the former because of the lesser intensity. Diffused daylight will cause fading in poor colours. Absolute darkness is the only protection for fugitive dyes. C—9.

Fluorescence and Photo-Chemical Activity of Zinc Oxides. G. Winter and R. N. Whittem. *J. Oil Col. Chem. Ass.*, 1950, **33**, No. 365, pp. 477-483. Measurements have been made of the fluorescence efficiency and the photo-chemical activity of samples of zinc oxide, and the results obtained have been correlated with the ability of the oxide to protect the oil medium of paints from light-catalysed oxidation. The interaction of light quanta with the crystal lattice of zinc oxide is discussed briefly from energy considerations. C—9.

Fundamental Considerations in Measuring-Circuits using Light Sensitive Devices. R. C. Walker. *Instrum. Pract.*, 1950, **5**, No. 1, pp. 22-26). Different types of cells and circuits for light measurement are described and discussed. C—9.

Colour Harmony. M. E. Clarkson, O. L. Davies and T. Vickerstaff. *Colour*, 120 pages, published by Imperial Chemical Industries Limited, January, 1950 (pp. 81-89). The authors describe an investigation which had as its aim the scientific examination of the elements of colour harmony. Observers were shown binary combinations of colours, selected from a colour circle of twenty-four poster colours of high saturation, the sensation steps between adjacent patterns of colour being equal. The maximum difference was therefore between colours opposite to one another on the card, and could be given the value of 12. It was found that the equation

$$\phi = \frac{SP}{L^2}$$

where ϕ is some function representing popularity,
S = colour difference
P = purity ratio of the two colours
L = lightness ratio of the two colours

gave curves closely approximating to those plotted from experimental results. It is concluded that hue difference is the most important factor in determining colour harmony, but that other factors influence the choice of the most harmonious colour from a number of colours around the complementary colour. These other factors include a general distaste for yellow-green colours, and for a great lightness contrast between two adjacent highly saturated colours. There appears to be a connection between the psychological response to colour combinations, and the physical attributes of the two colours involved. C—9.

Elimination of the Unwanted Image in Diffraction Microscopy. W. L. Bragg and G. L. Rogers. *Nature*, 1951, **167**, No. 4240, pp. 190-191. The authors describe a method of eliminating the effects of the unwanted image by taking a subsidiary hologram and subtracting it from the reconstruction; that is, while one hologram gives two images, two holograms can be made to give one image. The principle is illustrated by diagrams, and by a photograph of its results in an experimental test. C—9.

The Reproduction of Colour. Arthur C. Hardy and F. L. Wurzburg, Jr. *Interchem. Rev.*, 1950, **9**, Nos. 1-2, pp. 3-12, No. 3, pp. 54-62. A fifteen-year research programme has culminated in the development of electronic scanning equipment whereby four-colour process plates of high fidelity can be made almost automatically, thus avoiding the problems of conventional procedures. Part I sets out to make the principles and processes of colour reproduction clear to the non-technical reader, with the help of reproductions of the component parts of a colour print. Part II goes on to explain in non-mathematical language the working principles of the electronic proofing press which has been developed, and includes single-colour, three-colour and four-colour versions of an illustration printed from plates produced by the new system. C—9.

Cleavage of Macromolecules of Natural High-Molecular Substances under the Action of Gamma-Rays. M. A. Khenokh. *Zhur. Obshcheĭ Khim.* (J. Gen. Chem.), 1950, **20**, pp. 1560-7 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 963[d]). Irradiations with gamma-rays from radium bromide (filtered through two glass walls to eliminate most of the electronic emission) were performed in the dark under sterile conditions, with starch solutions and aqueous solutions of monosaccharides as test substances. Solutions of starch, agar and gum arabic showed, among other effects, a decline of viscosity, and it appears that organic acids are formed. C—9.

Electronic Instrumentation Applied to Engineering Research. Section 5. Noise Measurement. R. K. Vinycomb. *Instrum. Pract.*, 1950, **5**, No. 1, pp. 27-31. In this series of articles the author gives a survey of American practice, which he investigated during a visit to America. In Part 5 he discusses the problems of psycho-acoustics; the possibility of objective sound measurements; the use of sound level meters, analysers, and microphones; the estimation of acoustic power by means of surface vibration measurement; and the use of level recorders and magnetic recorders. A list is given of twenty American organisations which contributed information for this article. C—9.

Factors in the Attractiveness of Bodies for Mosquitoes. A. W. A. Brown. *Nature*, 1951, **167**, No. 4240, p. 202. Two stainless steel water tanks, resembling dummy men and containing 100 lb. of water heated to 98° F, were set up 6 ft. apart in a forest glade in Canada, to test what conditions and types of clothing would prove most attractive to mosquitoes. White clothing was much less attractive than black, and the light shades of red and blue were less attractive than the dark shades. Luminescent satins were less attractive than their non-luminescent counterparts. Satins were less attractive than broadcloths or crêpes, and woven nylon clothing than cotton shirts and drill trousers. C—9.

A History of the Microscope. John J. Kelsch. *Interchem. Rev.* 1950, **9**, Nos. 1-2, pp. 13-24. This article gives an account of the beginnings of the science of optics, and an outline of the development of the microscope from its invention by the Janssens in Holland in 1591 up to the present day. Drawings and photographs of early instruments are included. C—9.

New Approaches to the Interpretation of X-Ray Powder Photographs. H. Lipson and H. Steeple. *Nature*, 1951, **167**, No. 4247, p. 481. The interpretation of X-ray powder photographs has been simplified by the use of photographic paper of large grain size. This gives the lines a "spotty" appearance and the number of spots gives an idea of the multiplicity factors of the reflexions. C—9.

Rheology of Suspensions of High Solid Concentration. P. J. Rigden. *Nature*, 1951, **167**, No. 4240, pp. 197-198. The article discusses the behaviour of systems consisting of five mineral powders dispersed to very high concentrations in media which are substantially Newtonian liquids of high viscosity. Voids in the compacted dry powders being regarded as pores, it is possible to determine the mean pore radius, and to regard this radius as an inverse measure of the particle-particle interference. The possibility of extending the method to lower concentrations is being considered. C—9.

A Rotary Chart Translator. G. A. Flint and J. G. Lee. *Engineer*, 1951, **191**, No. 4964, pp. 340-342. A machine is described by means of which circular charts from recording intruments are automatically replotted on to a strip chart. The time base is condensed so that, for example, one month's records can be collected continuously on one strip. Diagrams are given showing the construction of the device. C—9.

A Sheet Specimen Scanner for X-Ray Diffraction. D. J. Neil. *Canad. J. Tech.*, 1951, **29**, No. 2, pp. 84-86. An improved and simple design for an X-ray diffraction scanner is described and illustrated. C—9.

A Simple Automatic Recording Microphotometer. R. M. Fisher and D. S. Miller. *Rev. Sci. Instrum.*, 1950, **21**, No. 11, pp. 938-939. Some details are given of a precision microphotometer that has been constructed to measure diffraction patterns taken with the camera of the RCA EMU electron microscope. C—9.

Texture in Swollen Alginates. I. MacArthur and B. Patnaik. *Proc. Leeds Phil. Soc.*, **5**, Part 3, pp. 254-262. Small-angle X-ray scattering is applied in determining texture in swollen alginates. A marked difference is found when polyvalent cations are replaced by monovalent cations (calcium by sodium or rubidium), this difference being due to a gel-sol transition, caused by cross-link rupture, which produces a quasi-liquid structure. The authors conclude that the alginates offer a tractable biological model for the expression of macromechanics in structural, energetic and molecular terms, with a bearing on biological systems in the swollen state. Twenty-three references are given. C—9.

Transmission of Beta-Rays by Nylon and Formvar. R. B. Heller, E. F. Sturcken, and A. H. Weber. *Rev. Sci. Instrum.*, 1950, **21**, No. 11, pp. 898-902. The percentage beta-ray transmission by thin nylon and Formvar films (or windows)

has been studied in order to obtain experimental "absorption" corrections to be used with Geiger-Müller counters employing such thin windows. Results are presented and discussed. C—9.

X-Ray Investigation of the Folding of Dissolved Long-Chain Molecules. O. Kratky, G. Porod, and A. Sekora. *S.B. Akad. Wiss. Wien*, 1948, 157, IIb, pp. 295-296 (through *Brit. Abstr.*, **A** I, 1950, August, p. 488). Intra-molecular distances were measured by using heavy atoms as markers. The distance between the iodine atoms in di-iododecane dissolved in dodecane was found to be $12{\cdot}4 \pm 0{\cdot}3$ A. The configuration of the carbon atoms is discussed. C—9.

Graphical Solution of Epicyclic Gear Train Problems. W. H. Mann. *Engineering*, 1951, 171, No. 4442, p. 312. A graphical method is described for working out problems on simple epicyclic gear trains. C—9.

Quality-Control Chart Based on Goodness-of-Fit Test. A. J. Feuell and S. M. Rybicka. *Nature*, 1951, 167, No. 4240, pp. 194-195. The authors describe a rapid method of deciding whether frequency distributions conform to an expected distribution. The method is based on the χ^2 goodness-of-fit test, and the article explains the conditions to be observed and the interpretation of the chart. C—9.

The Use of a Discriminant Function in Textile Research. William D. Baten, Merle Ford, and Ruth M. Heitz. *Text. Res. J.*, 1950, 20, No. 12, pp. 869-872. A discriminant function provides a means for testing an aggregate of all measurements for significance without having to test each factor separately. The use of a discriminant analysis in textile research is illustrated here by reference to the measurement of five properties of towel fabric. C—9.

Ascochyta Seedling Blight of Cotton in Alabama in 1950. A. L. Smith. *Plant Dis. Reptr*, 1950, 34, No. 8, pp. 233-235 (through *Rev. Appl. Mycol.*, 1951, 30, No. 2, p. 105). Frequent local showers and prolonged cool weather were responsible for an epidemic infection of *Ascochyta gossypii* in Alabama. The plant debris from the previous crop was the major source of inoculum, and only light infections occurred when cotton followed other crops (mostly maize). The disease appears to be seed-borne. Late-planted fields were less severely infected than those planted early. The author lists crop rotation, immediate ploughing-under of cotton stalks after harvest, autumn disking, deep spring ploughing, and flat planting, as measures giving partial control, and suggests "wet-weather blight" as a common name for the disease. C—9.

The Biological Degradation of Soluble Cellulose Derivatives and its Relationship to the Mechanism of Cellulose Hydrolysis. Elwyn T. Reese, Ralph G. H. Siu and Hillel S. Levinson. *J. Bact.*, 1950, 59, pp. 485-97 (through *Chem. Abstr.*, 1950, 44, No. 14, p. 6620[d]). The authors found degree of substitution (D.S.) of soluble cellulose derivatives to be a primary factor in determining their resistance to attack by micro-organisms. The presence of a single substituent on each anhydroglucose unit appears to confer immunity; below this threshold value, increasing the D.S. of the cellulose derivative increases its resistance. The ability to hydrolyse the 1, 4-β-glucoside linkage found in cellulose is not limited to cellulose-decomposing organisms. Biological solubilisation of cellulose probably takes place in at least two steps: conversion of the native cellulose molecule into linear anhydroglucose chains, and hydrolysis of the 1, 4-β-glucoside linkage to form soluble sugars. C—9.

Cellulose Decomposition By Soil Fungi. II. Influence of Various Sugars. Yuji Sasaki and Masayuki Nakane. *Oyo Kingaku* (*J. Appl. Mycol.*), 1949, 3, pp. 88-96 (English summary) (through *Chem. Abstr.*, 1950, 44, No. 20, p. 9515[i]). Investigations were made into the acceleration or delay of the decomposition of cellulose by fungi, when varying amounts of sucrose, glucose, dextrin, or soluble starch were added. The fermenting agents used were *Trichoderma koningii*, *T. lignorum T. album and Botrytis cinerea.* C—9.

Cotton Fibre: Observations on Microbiological Deterioration During the Period of Boll Opening in 1949. P. B. Marsh, L. R. Guthrie, Katharina Bollenbacher and D. C. Hanell. *Plant Dis. Reptr*, 1950, 34, No. 6, pp. 165-175 (through *Rev. Appl. Mycol.*, 1951, 30, No. 2, p. 104). The article describes an investigation into a fungus attack on cotton in South Carolina. A failure to fluff was caused by infection with *Diplodia* and *Glomerella*. Density of leaf cover round the bolls appeared to be the chief factor affecting the incidence of the disease, and

chemical defoliation resulted in major decreases in the percentage of infected bolls. C—9.

Histamine: Biological Assay in Small Quantities of Liquid. Karl Bucher. *Experientia*, 1951, 7, No. 3, pp. 111-113. In German. A simple and sensitive method for determining small quantities of histamine is described. The guinea-pig intestine used in this test is turned inside out and used as a container for the liquid, so that the histamine-sensitive layer forms the inner surface of the container. This makes possible the use of only 0·2 ml. of liquid instead of the minimum of 1·0 ml. necessary when the intestine is immersed in a special cell. It is shown that this modified procedure involves no loss of sensitivity. C—9.

Cotton: Chemical Composition. Elizabeth R. McCall and Julian F. Jurgens. *Text. Res. J.*, 1951, 21, No. 1, pp. 19-21. The fibre properties of six samples of commercial raw cottons are tabulated. The chemical compositions of these cottons have been determined, and analytical data are given for cellulose, total sugars and reducing sugars, nitrogen, wax, ash, ash alkalinity, *pH* of the water extract, and the several organic acids present. Complete analysis of the ash from two of the cottons shows that potassium is the principal metal present. C—9.

Dyestuffs: Paper-Chromatography. H. Zahn. *Textil-Praxis*, 1950, 6, No. 2, pp. 127-130. In German. The article gives a history of the development of paper chromatography and its application to dyestuff analysis. C—9.

Separation of Amino Acids and Peptides by Chromatographic Adsorption. I & II. Toshio Ando and Tadashi Yonemoto. *Rept. Radiation Chem. Research Inst., Tokyo Univ.*, 1948, 3, p. 15; 1950, 5, pp. 53-5 (through *Chem. Abstr.*, 1950, 44, No. 12, p. 5414[h]; No. 20, p. 9503[f]). In a preliminary experiment on the application of chromatographic brush methods, glycine, arginine, and glutamic acid dissolved in distilled water (*pH* about 5·5) were adsorbed through a column of activated aluminium oxide and developed with water. The adsorbed layer was revealed by the change of colour when brushed with alkaline permanganate solution. In Part II the effect of hydrochloric acid, in the sample to be analysed, on the paper chromatograms of amino acids, was studied in different solvents. C—9.

Use of the Diamine Reaction for the Detection of Some Macromolecular Compounds Containing Free Carboxyl Groups. M. Krajčinović. *Arhiv. Kem.*, 1948, 20, pp. 122-5 (through *Chem. Abstr.*, 1950, 44, No. 12, p. 5268[h]). Earlier work by the author (*J. Textile Institute*, 1947, 38, T11) showed that oxidised polysaccharides form addition compounds with aromatic diamines and quantative and qualitative tests for the free carboxyl group in macromolecular compounds were developed from this reaction. In the present experiments a specific qualitative test was devised for detecting the free carboxyl group in macromolecular natural substances. The test is positive for agar, and negative for starch, cellulose, insulin, and lignin. Similarly, waxes and resins can be differentiated from unsaponifiable material, since only the former groups give colour tests with the diamine reagent. C—9.

Atomic Weights Table—1949 (With Comments). G. Rienäcker. *Z. anorg. allg. Chem.*, 1951, 264, No. 1, pp. 54-56. The 1949 list of atomic weights, as published by the American Chemical Society, is reproduced. There is now an unbroken series of elements up to No. 96. Provisional atomic weights are ascribed to those elements produced "synthetically" by atom-physical methods. C—9.

Allyl Starch. Jean Chadapaux. *Congr. tech. intern. ind. peintures inds assoc.*, 1947, 1, pp. 526-9 (through *Chem. Abstr.*, 1950, 44, No. 20, p. 9710[a]). (See also *Summary*, Abstract C.1951/352.) This article reviews the preparation and properties of the allyl ether of starch, and describes some experimental work. In a typical experiment the substance was prepared in the laboratory by heating starch, allyl bromide, methyl ethyl ketone and potassium hydroxide under reflux with stirring for seventeen hours. The product contained 2·14 allyl groups per glucose unit. C—9.

Cellulose Reactions. XIII. The Distribution of the Substituents in Some Highly Substituted Cellulose Ethers. Tore Timell. *Svensk. Kem. Tid.*, 1950, 62, pp. 49-60 (through *Chem. Abstr.*, 1950, 44, No. 13, p. 6119[g]). The author investigated the reactivity of hydroxyl groups in a fibrous methylcellulose (degree of substitution, = D.S., of 2·29) and two commercial ethylcelluloses (D.S.

2·32 and 2·48, respectively). The order of the reactivities was such that alkylation of the primary hydroxyl group was checked at higher stages of conversion. The number of glycol groups in the 2, 3-positions were considerably lower than that calculated statistically, indicating interference between substituents in these positions. The distribution of substituents was determined analytically and was found to check with calculations based on the laws of probability, that is, it was very uniform. C—9.

Cyanoethylation of Alpha Amino Acids. I. Monocyanoethyl Derivatives. L. L. McKinney, E. H. Uhing, E. A. Setzkorn, and J. C. Cowan. *J. Amer. Chem. Soc.*, 1950, **72**, June, pp. 2599-2603. A series of N-monocyanoethyl derivatives of α-amino acids has been prepared by treatment of aqueous solutions of the alkali (or alkaline earth) metal salts with acrylonitrile. C—9.

Nitrocellulose. XXVI. Nitration of Cellulose by a Chloroform-Acid System. Sadayoshi Watanabe. *J. Soc. Textile Cellulose Industry, Japan*, 1945, **1**, pp. 636-41 (through *Chem. Abstr.*, 1950, **44**, No. 13, p. 6117[h]). The article describes the nitration of ramie by the phase having the lowest nitric acid concentration separated from a chloroform/nitric-acid mixture. C—9.

Ozonization of Aldehydes Containing a Double Bond: Cinnamic Aldehyde. Part. I. E. Dallwigk and E. Briner. *Helv. chim. Acta*, 1950, **33**, No. 7, pp. 2186-2195. In French. On ozonizing an aldehyde containing a double bond, for example, cinnamic aldehyde, two reactions occur, namely, the formation of an ozonide at the double bond, and accelerated autoxidation of the aldehyde group. It has been established that the two reactions occur simultaneously, and products identified include the ozonide of the aldehyde, the ozonide of the acid, glyoxylic acid, carbon dioxide and formic acid. Measurements of the variation of the dielectric constant with time have shown that spontaneous decomposition of the ozonide during ozonization is negligible C—9.

The Preparation of Lime- and Acid-Resisting Washing, Dispersing, and Wetting Agents for the Textile Industry. Walter Riess. *Seifen-Öle-Fette-Wachse*, 1950, **76**, pp. 103-4 (through *Chem. Abstr.*, 1950, **44**, No. 13, p. 6172[a]). Secondary alcohols were prepared from the ketones obtained by the distillation over catalysts of fatty acids of low molecular weight. These alcohols were condensed with benzene, naphthalene, or phenol and oleum or chlorosulphonic acid at 30-40° C. to yield true sulphonic acids. C—9.

Reaction of Formaldehyde with Cotton. Charles F. Goldthwait. *Text. Res. J.*, 1951, **21**, No. 1, pp. 55-62. Partially methylenated cottons have been prepared by the reaction of cotton with formaldehyde under acid conditions in non-aqueous (mainly acetone) solutions. The modified cotton does not differ from ordinary cotton in appearance and general textile character, but displays some new properties. It has dye-resisting properties, a decreased swelling capacity in water, and good resistance to biological rotting. Dyeings with direct cotton colours are made faster by this treatment. C—9.

Soluble Starch. P. Islentev. *Tekstil Prom.*, 1948, **8**, No. 1, p. 43; *Chem. Zentr.*, (Russian Zone Ed.) 1948, **2**, p. 1139 (through *Chem. Abstr.*, 1950, **44**, No. 20, p. 9710[b]). (See also *Summary*, 1942, p. 496.) Different methods are described for the preparation of soluble starch suitable for use with various textiles, and the characteristics of the resulting products are given. C—9.

Acid Treatment of Cellulose and its Admixture. II and III. Alsuji Torii. *J. Soc. Textile Cellulose Industry, Japan*, 1945, **1**, pp. 629-32, 632-6 (through *Chem. Abstr.*, 1950, **44**, No. 13, p. 6118[a]). A comparison was made of the action of sixteen metal nitrates in catalysing the oxidation of cellulose from filter paper for qualitative analysis with nitric acid. In Part III the catalytic action of potassium nitrate was studied; the product was modified according to the concentration, the 0·5 and 0·8 molar per cent. solutions being the most effective, and the 0·3 molar per cent. solution the least effective, in refining the cellulose. C—9.

Synthetic Protein Fibres: Reactions with Formaldehyde: Complex Salt Formation. H. G. Fröhlich. *Melliand Textilber.*, 1951, **32**, No. 2, pp. 136-140. In German. The author discusses the nature of possible reactions occurring between

formaldehyde and the various types of active groups within synthetic protein fibres. The paper concludes with notes on the possibility of complex salt formation involving the carboxyl groups and metal salts. There are 23 references. C—9.

Trends in Fundamental Research in the Cellulose and Wood Pulp Field. Emil Heuser. *Tappi*, 1950, 33, pp. 118-24 (through *Chem. Abstr.*, 1950, 44, No. 13, p. 6115[g]). The author gives a review of the subject, with eighty-six references. C—9.

Cohesion and Polymerisation of Large Molecules in Relation to their Dielectric Loss. Pierre Girard, Paul Abadie and Robert Charbonnière. *Compt. rend.*, 1949, 229, pp. 1316-19 (through *Chem. Abstr.*, 1950, 44, No. 20, p. 9203[e]). The dielectric losses of four samples of polyvinyl chloride, characterised by molecular weights of 23,000, 46,000, 70,000 and 125,000, were determined at frequencies from 25 cycles per second to one megacycle, and at temperatures from 18-105° C. Below 70° C. the results were not characteristic of the liquid state. In a limited temperature region, solid and liquid states coexist. C—9.

Dielectric Relaxation of High-polymers, II. Werner Kuhn. *Helv. chim. Acta*, 1950, 33, No. 7, pp. 2057-2092. In German. A rigid molecule in a high-polymer solution which is under the influence of an electric field relaxes when the field is removed, the relaxation time depending on such factors as viscosity of the liquid, size and shape of the molecule, and the degree of free rotation in the polymer chain. Such conditions give rise to a "relaxation-time spectrum", the nature and structure of which is discussed at length. (For I, see *J. Textile Institute*, 1948, 39, A 626.) C—9.

The Formation of Surface Films of Liquids and Their Solidity. Aladár Buzágh and Jolán Szonyi Komárominé. *Magyar Kém. Lapja*, 1949, 4, pp. 28-34 (through *Chem. Abstr.*, 1951, 45, No. 3, p. 1345[h]). Investigation of triphenylmethane dyes by a modified torsion apparatus of Rhodes showed that they could be divided into two classes, those which do, and those which do not, spontaneously form surface membranes. There appears to be a relationship between changes of the grade of dispersity, and the solidity of the membranes. C—9.

Alkali Cellulose: Heat of Xanthation. Eitaro Oka and Hiroshi Uchiyama. *J. Chem. Soc. Japan*, Ind. Chem. Sect., 1948, 51, pp. 38-39 (through *Chem. Abstr.*, 1950, 44, No. 20, p. 9671[e]). An expression is given for the heat of xanthation of alkali celluloses in liquid paraffin. From the linear evolution of heat with time, the reaction of caustic soda with carbon disulphide is found to proceed exothermically in parallel with the xanthation reaction. C—9.

Colloidal Electrolytes: Influence on the Swelling of Isolated Epidermis. Ernst K. Götte. *Kolloid-Z.*, 1950, 117, No. 1, pp. 42-47. In German. Soap solutions at low concentrations cause all four layers of the epidermis to swell to a similar extent. After the critical concentration, at which soap-micelle formation commences, differential swelling occurs, that is, the basal-layers swell to a greater extent than the outer layers. It is shown that addition of various types of electrolytes modifies the concentrations at which differential swelling occurs, and that these new concentrations are identical, within experimental limits, with the critical soap-micelle forming concentrations as modified by the addition of the same salts to soap solutions. C—9.

Ionotropy: Effect of Micelles. Heinrich Thiele and Heinrich Micke. *Kolloid-Z.*, 1950, 117, No. 3, pp. 144-153. In German. Anistropic micelles, both fibrillar and lamellar, behave as spontaneous permanent multipoles when oriented by ions. According to electrical and optical measurements, spontaneous or induced dipoles, or dipoles formed by ion adsorption, do not have a prior existence in the system. The nature of the colloid particles, that is, their isotropic or anisotropic characteristics, can be determined by the diffusion potential in sols. The extent of orientation varies inversely with change of temperature. Observations carried out on vanadium pentoxide sols, both fresh and aged, are reported. C—9.

Modern Adsorption Theory. I. G. F. Hüttig and O. Theimer. *Kolloid-Z.*, 1950, 119, No. 2, pp. 69-73. In German. The majority of modern theories of adsorption are based on that of Langmuir. The impact of later developments on the postulates within the original theory is surveyed. The expressions obtained by Hüttig's development and that of Brunauer, Emmett and Teller, are given,

and a compromise expression is then derived, which is more in accord with observed phenomena than either of the component expressions. C—9.

Physicochemical Studies on the Manufacturing Process of Artificial Fibres. Parts I-VIII. Hirokuni Maeda. *J. Soc. Textile Cellulose Ind. Japan*, 1945, 1, pp. 651-4, 654-8, 669-72, 672-7; 1946, 2, pp. 8-13, 13-19, 53-5, 56-8 (through *Chem. Abstr.*, 1950, 44, No. 13, pp. 6115h-6116e). Part I deals with quantitative observations on the crystalline region of cellulose, and describes a method which enables the distribution of the crystalline and non-crystalline parts, and the length of the crystalline particles, to be estimated. Part II evaluates the determination of the crystalline region; examination of the behaviour of the crystalline part separated in Part I showed that the non-crystalline part had been almost totally removed. In Part III the same method was applied to compare the microstructures of various natural cellulose fibres. Almost all the pentosan was found in the non-crystalline region (between micelles) in the wood pulps, but in the crystalline part in the straw pulp. Part IV examines the behaviour of the crystalline and non-crystalline regions of cellulose when (1) immersed, and (2) aged, in caustic soda. Part V analyses the processes of sulphonation and solution of xanthated cellulose. Part VI deals with the dispersed state of viscose and its change during the heat finishing process. Part VII describes physico-chemical changes during the solidification of viscose, and the process is theoretically discussed with the postulate that there exists an adjustment time for every state of the solidifying unit. Part VIII describes how viscose was spun at various speeds, to determine the amount of cellulose crystallisation under various conditions. C—9.

The Soluble State of High-Molecular Compounds. V. Philippoff's Formula for Viscosity. VI. Premature Turbulence of Viscose Solutions. Munco Takei. *J. Chem. Soc. Japan*, Ind. Chem. Sect., 1948, 51, pp. 28-30 (through *Chem. Abstr.*, 1950, 44, No. 20, p. 9215b). (See also *J. Textile Institute*, 1944, 36 A6). The author found that in calculating the viscosity of solutions of cellulose acetate and nitrocellulose, the amount of solvation (*a*) is not negligible except for low concentrations of cellulose acetate and intermediate concentrations of nitrocellulose. He therefore suggests the need to revise Philippoff's formula, which takes no account of *a*, and presents an amended formula. Structural and Newtonian flow and turbulence were measured for many viscose solutions of alkali cellulose, and premature turbulence was observed in all concentrations. C—9.

Sound Transmission in Gelatinous Substances. Arvind Mohan Srivastava. *Kolloid-Z.*, 1950, 119, No. 2, pp. 73-85. In German. An expression is derived for determining the velocity of sound waves through a gelatinous medium. The investigation has shown that wave-scattering is not independent of the shape of the particles. The present treatment of the problem is based on solving equations for motion within and outside the solid phase and, in fact, in the form of progressive series in zonal harmonic functions. There are 20 references. C—9.

X-Ray Diffraction in Colloid Systems. R. Hosemann. *Kolloid-Z.*, 1950, 117, No. 1, pp. 13-41. In German. A theory is presented which establishes a relationship between packing density, polydispersity, and pure particle-scattering of X-rays, in colloidal systems. In dealing with small-angle scattering, the author introduces the concept of "particles". These "particles" are defined as very small anisotropic regions outside of which there is either a state of three-dimensional isotropy when the colloidal system is macroscopically colloidal, or of two-dimensional isotropy when the material has a macroscopically fibrous texture. The "particles" may be considered to be spheres or ellipsoids. The influence of these "particles" on small-angle scattering is considerable, and an expression representing them as one component factor in small-angle diffraction can readily be derived. The other component, namely, that due to scattering by the liquid, is also derived on a statistical basis, and it takes into consideration the phase relationships between the particles. C—9.

Determination of the Exposed Specific Surface of Pulp Fibres from Air-Permeability Measurements. Joseph C. Brown, Jr., *Tappi*, 1950, pp. 130-7 (through *Chem. Abstr.*, 1950, 44, No. 13, p. 6122e). An apparatus was built for determining the air permeability of pulp fibres under variable conditions of fibre-bed compactness. Reference is made to the equations of Kozeny (*Sitzber. Akad. Wiss. Wien. Math.-naturw. Klasse*, 1927, Abt. IIa, 136, pp. 271-306) and Carman (*Summary*, 1938, p. 581). From permeability data on handsheets, it was

concluded that about 25-30 per cent. of the surface of the beaten pulp was involved in fibre bonding. C—9.

Elimination of Static Charges by Means of Radioactive Materials: The "Ionotron". Anon. *Textil-Praxis*, 1950, **5**, No. 7, p. 418. In German. The article discusses the advantages of radio-active air ionisers over high-frequency current methods for removing static charges during the processing of the more troublesome textile fibres such as nylon, acetate rayon, or angora wool. Particular reference is made to the simplicity of construction, installation and maintenance of the "Ionotron", which consists essentially of two leaves of a noble metal, such as gold or platinum, on the inner surface of one of which is deposited a layer of suitable radio-active material. The direction of the radiation is readily controlled by the design of the housing. C—9.

Strain Measurements: The Extensometer. ("Static Extensometry.") H. de Leiris. *Machinist*, 1950, **94**, 973-978. The principle of stress measurement is considered, and it is pointed out that all methods of measuring stresses depend on the determination of the strains which accompany them. The direct measurement of strains by use of the electrical strain gauge is briefly explained and the indirect determination with the extensometer is dealt with in some detail. Short (*ca.* 20 mm.) base and very short (*ca.* 2 mm.) base extensometers are discussed, and errors, operation, pick-up system, and amplification systems are touched on. C—9.

DDT for Control of the Pink Bollworm in Mexico in 1946. A. J. Chapman, L. C. Fife, G. L. Smith and J. C. Clark. *J. Econ. Entomol.*, 1950, **43**, pp. 491-4 (through *Chem. Abstr.*, 1951, **45**, No. 4, p. 1717[b]). This article describes the control of *Pectinophora gossypiella* in cotton by six weekly applications of 16·3 lb. per acre of D.D.T. dust (ten per cent.). C—9.

Mildew Preventives. Milton A. Lesser. *Soap Sanit. Chemicals*, 1947, **23**, No. 11, pp. 119-21, 123, 152C, 153 (through *Chem. Abstr.*, 1949, **43**, p. 9349[d]). **Mildew Products.** Milton A. Lesser. *Soap Sanit. Chemicals*, 1950, **26**, No. 10, pp. 110-13, 139, 141 (through *Chem. Abstr.*, 1951, **45**, No. 1, p. 297[g]). In the first paper, a discussion is given of the conditions conducive to mildew growth on textiles and leather, and of mechanical and chemical methods of its control. Formulæ are given for many preparations suitable for various end uses. The second paper is a review covering the occurrence of mildew and its prevention by fungicides, such as metallic compounds (copper, mercury, zinc), phenolics, salicylanilide, and various volatile compounds. The author discusses recent developments in this field, and various commercial fungicides. C—9.

The Nutritive Value of Silkworm Pupa. Part IV. Tatsuo Koyanagi and Shinjiro Takeo. *Igaku to Seibutsugaku* (Med. and Biol.), 1949, **15**, pp. 101-102; **Part V.** Tatsuo Koyanagi. *Ibid*, 1950, **17**, pp. 46-49 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 1258[e]). Part IV deals with components of the unpleasant odour of the silkworm pupa. Part V discusses the yellow enzyme of the silkworm. Xanthine oxidase activity was demonstrated in the body fluid of silkworms; the yellow enzyme was isolated from the silkworm, and it was shown to oxidise xanthine. Flavins in the Malpighian bodies were fractionated, and it was found that 48 per cent. of the total flavins were conjugated with phosphoric acid. C—9.

Rearrangement of the Amino-Acid Residues in Peptides by the Action of Proteolytic Enzymes. S. G. Waley and J. Watson. *Nature*, 1951, **167**, No. 4244, pp. 360-361. It has been found that in the degradation of certain tripeptides by a mixture of trypsin and chymotripsin, the products include dipeptides in which the sequence of amino-acid residues differs from that in the original tripeptide. A tripeptide, L-lysyl-L-tyrosyl-L-lysine, has been synthesized, and the nature of the products formed by its enzymatic degradation have been examined by paper chromatography. In addition to lysine, tyrosine, lysyltyrosine, and tyrosyllysine, the dipeptide lysyllysine was formed. A mechanism for the transpeptidation is suggested. C—9.

Chemical Determination of Gammexane (*p*-hexachlorcyclohexane) in Technical Products by Removal of Hydrogen Chloride. Hubert Roth. *Z. anal. Chem.*, 1950, **131**, pp. 347-355 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 985[d]). Detailed descriptions are given of four methods for the estimation of Gammexane by hydrolysis followed by titration of the liberated hydrogen chloride. C—9.

Copper in Textiles To Be Rubberized; Proposed New Method for Determination of Injurious Copper. M. W. Weiss, Erik Hoffmann and Samuel Lee. *Amer. Dyest. Rep.*, 1951, **40**, No. 2, pp. 41-43. At present, the standard method of testing fabrics to be rubberised, for harmful copper, is by hot acid digestion, which converts harmless combined copper into the free form. Thus no distinction is made between fabrics containing harmful free copper, and those containing harmless combined copper, such as for instance copper phthalocyanine, which is widely used in colouring rubber goods. The authors here describe a method for detecting only the injurious copper in textile products, by extraction with dilute nitric acid. C—**9.**

Determination of Amino Acids. M. S. Dunn. *Advances in Chemistry Ser.* **3**, 1950, pp. 13-28 (through *Chem. Abstr.*, 1951, **45**, No. 1, p.68[g]). This paper is a review of the gravimetric, photometric, chromatographic, enzymic, and microbiological methods of determining amino acids. There are 315 references. C—**9.**

Rapid, Unspecific Detection of Water-Soluble Celluloses. Richard Neu. *Seifen-Öle-Fette-Wachse*, 1950, **76**, pp. 445-6 (through *Chem. Abstr.*, 1951, **45**, No. 4, p. 1767[f]). The colour reaction of glucose, scatole, and concentrated hydrochloric acid found by Weehuizen (*Pharm. Weekblad*, 1906, **43**, p. 1709) can be used to detect the presence of tyloses in detergent powders. C—**9.**

Spot Test Analysis of the Ash of Natural Cellulosic Fibres. Nathaniel A. Matlin. *Amer. Dyest. Rep.*, 1951, **40**, No. 2, pp. 44-48. The author set out to draw up a simple system of spot tests of the ash of textile materials, to determine the nature of any extraneous matter present. He aimed at finding tests which would be distinctive, specific, possible to carry out in the presence of other ions without interference, lasting not much longer than one minute, involving only simple manual operations, and requiring only common reagents and ordinary apparatus. He lists in this article tests for borates, chromates, phosphates, sulphates, iron, antimony, tin, copper, zinc, aluminium, magnesium, calcium, and silica and silicates. No suitable test could be found for zirconium or fluosilicate. Trial data are discussed. The author suggests that the scheme may serve, after revision and further investigation, as a basis for developing a system of spot test analysis which will encompass all commercially used fibres. C—**9.**

A Study of the Color Reaction of Iron with "TTA". Michael Cefola, Walter S. Andrus, Bruno R. Miccioli, and Leo K. Yanowski. *Mikrochem. Mikrochim. Acta*, 1950, **35**, No. 4, pp. 439-442. "TTA", 2-thenoyltrifluoracetone, gives a red colouration with solutions of ferric iron, the shades ranging between blood-red and pale pink according to the concentration of the iron. Conditions of test and data relating to the limiting concentrations of interfering ions are given. C—**9.**

Sub-micro Iodimetric Determination of Iron in Inorganic or Organic Substances. Léonce Deibner. *Mikrochem. Mikrochim. Acta*, 1950, **35**, No. 4, pp. 488-515. In French. After giving a brief review of previously devised methods for determining iron, the paper describes, in great detail, a new sub-micro technique, based on the Mohr-Braun method which depends in the reduction of ferric chloride by potassium iodide. A mean relative error of 3-5 per cent. is claimed. A method for removal of contaminating copper and cobalt in products of biological origin by means of nitroso-β-naphthol is also presented. Thirty-two references are given. C—**9.**

Verification of the Rider Indications on an Assay Balance. William M. Thornton, Jr. *Mikrochem. Mikrochim. Acta*, 1950, **35**, No. 4, pp. 431-438. A detailed description is given of the essential features of the Thompson (noble metal) assay balance, designed to weigh accurately small quantities, of the order of one or two grams. The accuracy of the rider readings was checked by a method of substitution with a standardised weight (0·5 g., National Bureau of Standards) followed by a series of weighings of a non-standardised weight, the riders being placed at selected divisions of the beam. It is suggested that the method employed is suitable for investigating the accuracy of rider readings on most scientific balances. There are thirty-six references. C—**9.**

Completely Automatic Mercury Washer for Laboratory Use. Hans-Ulrich Bergmeyer. *Chem. Ing. Tech.*, 1950, **22**, p. 330 (through *Chem. Abstr.*, 1951, **45**, No. 1, p. 2[d]). The mercury is passed in the form of fine droplets through various washing liquids in series. A diagram and detailed description are given. C—**9.**

Alkali-Sensitive Glycosides: Iso-Salicin and Its Fermentation Decomposition. Burckhardt Helferich and Hermine Liesen. *Liebigs Ann. Chem.*, 1950, **570**,

No. 2, pp. 148-154. In German. Two methods of synthesising iso-salicin are outlined, and some of its physical and chemical properties are described. C—9.

Changes in the Shape of Starch Molecules on Chemical Degradation. M. Samec. *Monatsh.*, 1950, **81**, pp. 195-7 (through *Chem. Abstr.*, 1951, **45**, No. 2, p.888[a]). The molecular-weight/viscosity constants for potato amylose and erythroamylose at various stages of hydrolysis by α-amylase is unaltered; erythroamylose is elongated. Acetylamylose is considerably elongated when degraded by heat. (See also *J. Textile Institute*, 1942, **33**, A 535.) C—9.

High-Polymer Chemistry of Polysaccharides. Ichiro Sakurada. *J. Japan. Biochem. Soc.*, 1949, **21**, pp. 166-71 (through *Chem. Abstr.*, 1951, **45**, No. 4, p. 1798[f]). **A Review of High-Polymer Chemistry.** Ichiro Sakurada. *Kagaku no Ryoiki* (*J. Japan. Chem.*), 1950, **4**, pp. 116-24. The first article is a review dealing mainly with starch and cellulose, with twelve references. The second article gives forty-nine references. C—9.

Hydrolysis of Starch with Hydrochloric Acid. Alfred Leman and Pierre Didry. *Compt. rend.*, 1950, **231**, pp. 443-5 (through *Chem. Abstr.*, 1951, **45**, No. 2, p. 887[c]). Rice starch is reacted with a determined volume of standard hydrochloric acid solution in anhydrous glucose in a boiling water bath. When 50 c.c. of the liquid is heated for one hour, varying the concentration of hydrochloric acid, the degree of hydrolysis of the starch reaches a maximum of 97 per cent. with N. hydrochloric acid. The titre of the acid determines the degree of hydrolysis; a table shows maximum hydrolysis as a function of time which varies with the normality of hydrochloric acid. The rate of hydrolysis in the presence of glucose regularly decreases. C—9.

New Facts About Oxycellulose. A. J. Hall. *Text. Merc.*, 1951, **124**, No. 3235, pp. 576, 578, 580. Mention is made of the dyeing troubles which arise, due to the formation of oxycellulose, when cellulose fibres are over-bleached. The author indicates the course of the periodate oxidation of cellulose, and briefly refers to modern ideas on the structure of oxycellulose. Reference is made to the after-treatment of oxycellulose with diazo-methane, or buffered sodium chlorite, to stabilise it against degradation by alkali. C—9.

Action of Ultrasound on Amino Acids. J. E. El'piner, J. B. Zbarskii, and V. N. Kharlamova. *Doklady Akad. Nauk. S.S.S.R.*, 1950, **73**, pp. 1255-1258 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 935[a]). The effect of ultrasound on a number of amino acids is reported. In some cases the amino acids are unaffected, and in others they are partially decomposed or totally destroyed. C—9.

Behaviour of the Polystyrene Chain in Diverse Solvents. Georges Vallet. *Compt. rend.*, 1950, **230**, pp. 1353-1354 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 929[h]). The intrinsic viscosities and diffusion constants of solutions of polystyrene in cyclohexanone, toluene, and methyl isopropyl ketone have been determined. One form of the evidence shows that for all solvent combinations the coiled molecule is equally permeable (or impermeable) to each solvent. Other evidence indicates the apparent impermeability of the molecule to each solvent. C—9.

Capillaries, Capillary Systems and Capillarity. XXII/5. Significance of the Donnan Barrier Layer in Corrosion Prevention and Substantive Dyeing. E. Manegold. *Kolloid Z.*, 1950, **116**, No. 3, pp. 135-146. The passage of ions through capillary layers, which may be uni-polar, di-polar or amphoteric in character (depending on the iso-electric point and the *pH*), is of great importance in several technological and industrial applications. Two of these, namely, corrosion prevention and substantive dyeing, are discussed. In the absence of electrolytes, substantive dyeing may be virtually impossible, since the highly charged dye particle cannot penetrate beyond the Donnan-layer into the fibre capillary. The addition of a suitable electrolyte neutralises the charge on the particle, which may then gain access into the capillary since the Donnan-layer is also removed. Removal of electrolyte by washing restores the original conditions, so that the dyestuff is now held within the capillary because of the renewed presence of the layer. C—9.

Changes in Physical-Mechanical Properties of Cellulose Fibres under the Action of Elevated Temperatures. T. Finkelshtein, V. Kargin and Z. Rogovin. *Tekstil. Prom.*, 1950, **10**, No. 8, pp. 9-11 (through *Chem. Abstr.*, 1951, **45**, No. 2, p. 858[i]). Heating hydrated cellulose fibres in a high vacuum for two hours at

200° C. did not affect the degree of polymerisation and strength of fibre, but at higher temperatures dehydration and breakdown of the macromolecule occurred, as indicated by lowered molecular weight and poorer mechanical properties. Viscose and triacetate fibres heated to 200° C. showed the same decrease in degree of polymerisation as cellulose; at 230-240° C. a sharp drop in mechanical properties was experienced in all cases. C—9.

The Electroviscous Effect in Solutions of Sodium Carboxymethylcellulose and the Dissociation of Carboxymethylcellulose. Th. Hekker. *Chem. Weekblad*, 1950, **46**, pp. 625-9 (through *Chem. Abstr.*, 1951, **45**, No. 2, p. 422[d]). The viscosity of sodium carboxymethylcellulose solutions is decreased by hydrochloric acid, sodium chloride, acetic acid, and citric acid, in accordance with the theory of Hermans and Overbeek (*Bull. soc. chim. belges*, 1948, **57**, pp. 154-62, in English). The dissociation constant increases as hydrochloric acid is added (*ibid.*, pp. 252-61, in English). C—9.

Heats of Wetting and Hydrophily of Disperse Systems. A. V. Dumanskiĭ. *Kolloid Zhur.*, 1950, **12**, pp. 319-325 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 927[d]). This is a review of the author's work. Methods of calculating the amount of "bound" water, A, (including calculation from the heat of wetting, Q) are discussed, and the values obtained for starch are given. The ratio Q/A is independent of sorbent. A simple relation between Q and A is obtained which gives the area of sorbent covered by 1 gram of "bound" water, and if the density of this water is known, the thickness of the "bound" water layer can be calculated. If wetting is not accompanied by solution, Q is independent of temperature, T; otherwise, the heat of solution determines dQ/dT. C—9.

High Polymer Solutions: Part V. Effect of Concentration on the Viscosity of Dilute Solutions. C. E. H. Bawn. *Trans. Faraday Soc.*, 1951, **47**, Part I, pp. 97-100. An expression has been obtained which accurately expresses the relation between viscosity and concentration for fractions of polystyrene in a given series of pure and mixed solvents. C—9.

Relationship Between Flow and Elasticity in Polymers. Walter Scheele and Thies Timm. *Kolloid Z.*, 1950, **116**, No. 3, pp. 129-134. In German. The authors have shown, in investigating the dependence of the shape of flow curves of non-Newtonian liquids on temperature, that the exponential n in the expression $v = k\tau^n$ (valid for non-Newtonian substances in a region of high shear-stress), passes through a clearly defined maximum, on either side of which its value approaches unity, both at higher and lower temperatures. An attempt is now being made to establish a relationship between this maximum and present-day views on the mechanical deformation behaviour of high-polymer compounds. C—9.

Solubility of Cellulose Derivatives. Sachihiko Inoue. *J. Text. Cellulose Ind. Japan*, 1945, **1**, Part XVI, pp. 613-618; Part XVII, *ibid*, pp. 618-622; Part XVIII, *ibid*, pp. 658-663; Part XIX, *ibid*, 663-668 (through *Chem. Abstr.*, 1951, **45**, No. 3, 1341[e]). XVI. The solute adsorption of acetyl-, benzoyl-, and nitrocellulose in a variety of solvents has been estimated from the solubility curves. A mechanism for the solution process is given which explains the liquid bottom body effect (change of solubility of a solute with higher concentrations). XVII. The effect of a solute on the swelling and solubility was investigated. XVIII. The hysteresis-type of solubility curves shown by trinitrocellulose (in acetone-ethanol) and acetylcellulose (in chloroform-benzene) have been studied. XIX. This article discusses the relationship between the polarity of solutes and solvents, and the solubility. C—9.

Rate Constants in the High Temperature Photolysis of Acetaldehyde. R. E. Dodd. *Trans. Faraday Soc.*, 1951, **47**, Part I, pp. 56-62. The author has studied the photochemical decomposition of acetaldehyde in the temperature range 156-450° C., using intermittent illumination. Rate constants for the chain propagation step and the bimolecular termination step have been found. The mechanism of the photolysis is discussed. C—9.

Rôle Played by Certain Dyes in the Action of Infra-red Radiation on the Latent Image (Herschel Effect). Léon Cohen-Solal. *Compt. rend.*, 1950, **231**, pp. 1136-1138 (through *Chem. Abstr.*, 1951, **45**, No. 3, p. 965[e]). Dyes such as Iodine Green, Malachite Green, and Phenosafranine, which sensitise the Herschel effect, desensitise the emulsion to actinic light. This desensitisation process has been studied on a commercial silver bromide emulsion. C—9.

The Weber-Fechner Law and Dyeing Strengths. I. H. Godlove. *Amer. Dyest. Rep.*, 1951, 40, No. 2, pp. P49-P50. In this article the author refutes the attempt by Cikurel (Abstract C.1951/846) to apply the Weber-Fechner Law (that is, in comparing magnitudes it is not the arithmetic difference but the ratio of the magnitudes which we perceive) to colouring of textiles, by relating even increase in visual effect to a logarithmic increase in dyeing strength. The author points out that dye strength cannot be equated with stimulus, and that furthermore, Cikurel's experimental results relate only to the range of dyeing percentage from 1·0 to 0·126, a range so small that it would make little difference whether the logarithmic, Munsell-value, or squared-value scale were chosen. This is thought to explain how Cikurel, using a faulty argument, reached approximately correct results. C—9.

Electron-Microscope Study of the Action of Alkali and Pancreatin on Collagen. A. L. Zaides and S. L. Pupko. *Doklady Akad. Nauk. S.S.S.R.*, 1950, 73, pp. 991-2 (through *Chem. Abstr.*, 1951, 45, No. 2, p. 685[c]). A four-day treatment of collagen with milk of lime did not affect microstructure, a month's treatment led to partial deorientation of the fibrils in selected regions of the structure, and a two-year treatment resulted in complete disorganisation. Three-hour treatment with pancreatin had no effect, eight-hour treatment led to the appearance of a striation of decomposed sections, after twelve hours fibril rupture was seen, and in four days' decomposition was complete. It was noted that the cross-striation of the fibrils normally lay in such a way as to correspond with, or match, those on adjacent fibrils. C—9.

High-Sensitivity X-Ray Tube for Spectral Analysis. M. A. Blokhin. *Zavodskaya Lab.*, 1949, 15, pp. 365-6 (through *Chem. Abstr.*, 1951, 45, No. 2, p. 439[d]). Background is reduced, and contrast and sensitivity are increased by observing X-rays emitted along the path of the incident elections. The anode surface is perpendicular to this path. The tube can be dismantled. C—9.

Viscosity Measurements: Investigation. Eduard Rein. *Schweiz. Ver. Lack-u. Farben-Chem. u.-Tech., Bull.*, 1950, No. 10, pp. 15-20 (through *Chem. Abstr.*, 1951, 45, No. 3, p. 928[f]). An investigation has been made of the accuracy of the efflux method for the measurement of kinematic viscosity, using standard apparatus. Great variation was found in the results obtained with different tubes (even among those from the same manufacturer), chiefly because of variations in the dimensions of the nozzle. A special precision tube was made to do away with these differences. C—9.

Lanosterol. (IX) Ketodihydrolanosterol. M. J. Birchenough and J. F. McGhie. *J. Chem. Soc.*, 1950, 1249-1252. The main product of the oxidation of dihydroagnosteryl acetate with perbenzoic acid is the $\alpha\beta$-unsaturate ketone, ketodihydrolanosteryl acetate. Dihydrolanosteryl acetate, on oxidation with chromic acid under mild conditions, gave the same ketone, together with dihydroagnosteryl acetate. Ketodihydrolanosteryl acetate was oxidised by selenium dioxide to a more highly unsaturated ketodidehydrodihydrolanosteryl acetate. W—9.

Lanosterol. (X) Ketodihydrolanosterol (contd.). J. F. Cavalla and J. F. McGhie. *J. Chem. Soc.*, 1951, 744-747. Oxidation of γ-lanostadienyl acetate with chromic acid gave ketolanostenyl acetate, identical with that from lanostenyl acetate. This product was dehydrogenated by selenium dioxide to ketolanostatrienyl acetate which has also been isolated from the mother-liquors obtained in the preparation of γ-lanostadienyl acetate from lanostenyl acetate with selenium dioxide. Oxidation of the triene gave triketolanostadienyl acetate, the presence of an α-diketo-grouping in which was shown by oxidation with alkaline hydrogen peroxide to a dibasic acid. Ketolanostenyl acetate has been reduced to γ-lanostadienyl acetate. W—9.

Lanosterol. (XI) Reduction of Ketones in the Lanosterol Series. J. F. Cavalla and J. F. McGhie. *J. Chem. Soc.*, 1951, 834-837. Reduction of acetoxylanostenedione with lithium aluminium hydride gave diacetoxylanostanone, whilst acetoxylanostanedione yielded diacetoxylanostanol. Oxidation of the last with chromic acid gave diacetoxylanostanone, which could be hydrolysed to the corresponding ketolanostanediol. W—9.

Wool Combination with Acids in Presence of Salts. B. Olofsson. *J. Soc. Dyers Col.*, 1951, 67, 57-66. Titrations of wool with hydrochloric acid in the presence of sodium chloride, sodium sulphate, potassium chloride, potassium sulphate,

barium chloride, and with sulphuric acid in the presence of sodium chloride and sodium sulphate, have been performed, the absorption of hydrogen, chloride, and sulphate ions being determined. The presence of sulphate ions always gives greater absorption of hydrogen ions than does that of chloride ions. A critical review of absorption theories is given, as regards their value for interpreting the experimental results. Both the Gilbert-Rideal and the Donnan theories are used for accurate comparison with the experiments; the former gives quite satisfactory results, but the latter gives only qualitative agreement. It is concluded that chloride and sulphate ions are not dispersed at random in the fibre phase, but are to some extent localised at positive sites, the former having greater affinity for the wool fibre than the latter ions. **W—9.**

Keratin Fibres: Physico-chemical Research. Fibrillar Cortical Cells from the Decomposition of Wool by Trypsin. H. Sobue. *J. Soc. Text. Cellulose Ind. (Japan)*, 1946, **2**, 59-62 (through *Chem. Abs.*, 1951, **45**, 1771). The spindle-shaped cortical cells separated from the squamous cells of wool by digestion with trypsin measured on the average 0·00890 mm. long and 0·00565 mm. wide. When heated in water, the width decreased slightly up to 45° C. and then increased, while the length remained unchanged in the beginning, began to decrease above 45° C., and decreased by 1 per cent. at 75° C. Boiling in water made the cells more susceptible to decomposition by trypsin. **W—9.**

Wool: Structure and Chemistry. M. Van Overbeke. *Teintex*, 1951, **16**, 62-73. (6 pp.) A review of knowledge of the chemical structure of wool. The effect on wool of various chemical treatments, and methods for the chemical modification of wool, are also described. **W—9.**

Electron Microscopy of the Surface Structure of Feather. B. Philip, G. Lagermalm and N. Gralén. *Biochim. Biophys. Acta*, 1951, **6**, 497-507. **W—9.**

10—ECONOMICS

Efficiency in Textile Management. Henry Miedendorp. *Rayon Synth Text.*, 1951, **31**, No. 12, pp. 86-88. The article deals with cost control, decentralisation of production, centralisation of purchasing and research, labour relations (especially pitfalls to be avoided in time and motion studies), and employee training schemes. **C—10.**

India's Cotton and Textile Trade with Foreign Countries. Anon. *Indian Text. J.*, 1950, **41**, November, pp. 97 and 120. Particulars are given of India's exports to Egypt, East Africa, Ceylon, and Iran, and of imports from Egypt. A frank analysis is made of the reasons for India's loss of the Iran market. **C—10.**

Rayon's Fortieth Year. H. Wickliffe Rose (American Viscose Corporation). *Rayon Synth. Text.*, 1950, **31**, No. 12, pp. 60-61, 64. The progress of the Corporation since 1910 is outlined. **C—10.**

Silk: Present Market Position. ("That Old Has Been: Silk!") Anon. *Rayon Synth. Text.*, 1950, **31**, No. 12, pp. 29-30, 39-41. This is a review of the present-day silk situation. Reference is made to production difficulties in Japan, price fluctuation, competition from rayon fibres, marketing prospects, and the work of the International Silk Association. Figures are given of recent woven-silk production in the United States, and comparative prices in 1941 and 1950 of silk, rayon, cotton and wool. **C—10.**

Supply Prospects of Raw Materials in the United Kingdom. Anon. *Board of Trade J.*, 1951, **160**, No. 2826, pp. 352-354. This survey includes a note on the supply prospects of cotton linters. **C—10.**

The Outlook for Synthetics in the Year Ahead. John M. Morahan. *Rayon Synth. Text.*, 1951, **32**, No. 1, pp. 52-53, 60-62, 64-65, 69-70. A detailed appraisal is made of the outlook of the (American) rayon and synthetic textiles industry for the year 1951. Owing to shortages in the supply of raw materials, the rising prices of raw materials, and possible shortage of skilled labour (by reason of the defence programme), it is forecast that the situation during 1951 will be more difficult than it has been in the immediate past. The position and plans of some of the major producers of rayon and synthetic fibres in America are surveyed. **C—10.**

West German Textile Industry. Anon. *Text. Wkly*, 1951, **47**, No. 1196, pp. 448, 450. The state of the West German textile industry during 1950 is briefly discussed, and some production and import statistics are given. **C—10.**

American Management Technique. Edward Packer. *Time Study Engr*, 1951, **6**, No. 1, pp. 9-14; No. 2, pp. 59-63. These articles discuss the work of the Anglo-American Council on Productivity, and all the features of the management of American industry which it is considered could usefully be studied by British firms. The author considers that the main factors contributing to efficiency in America are: the will to earn profits, and consciousness of cost, throughout all levels of a company; simplification of production; fierce internal competition leading to re-equipment to maintain efficiency; careful preparation of yarn for maximum productivity of automatic looms; mechanical handling to save costly labour; controlled atmospheric conditions resulting in stable rates of production; quality control run departmentally on empirical lines instead of on a statistical basis; a follow-up method to supervise the progress of trainees; promotion from within at all levels; delegation of considerable responsibility and power to executives; and a low accident rate, achieved by special techniques in spite of a lack of adequate guarding of machines. **C—10.**

American Textile Industry: "Textile World" Annual Review and Forecast. *Text. World*, 1951, **101**, No. 2, pp. 107-120. This review of the American textile industry during 1950 and forecast for 1951 covers (1) general outlook, (2) mill production, (3) purchases, (4) machinery developments, (5) research, (6) cotton and synthetic fibre dyeing, (7) wool-yarn processing, (8) worsted-yarn preparation, (9) wool wet processing, (10) engineering, (11) Washington developments, (12) personnel, and (13) overseas picture. **C—10.**

Exporting to Sweden. Anon. *Text. Wkly*, 1951, **47**, No. 1200, pp. 714, 716, 718. Some information on the Swedish textile market is given for the benefit of exporters in the U.K. This relates to market requirements, local and foreign competition, and buying seasons. **C—10.**

Historical Background: Development of Textile Industry in Ashton-under-Lyne and District. John Cassidy. *Text. Wkly*, 1951, **47**, No. 1200, pp. 720, 722. A summary is given of a lecture on the origin and development of the textile industries in Ashton-under-Lyne and district. **C—10.**

Industrial Application of the Ratio-Delay Method. Donald S. Carrell and Ralph M. Barnes. *Time Study Engr*, 1951, **6**, No. 2, pp. 43-47 (to be concluded). The authors describe an accurate and economical system of measuring interruptions and delays which interfere with the flow of production. This method is based on the statistical method devised by Tippett (see *J. Textile Institute*, 1935, **26**, A 332). The article deals with the theory of the ratio-delay method, preliminary analysis necessary, procedure for recording observations, and the precautions necessary to avoid taking a biased sample. **C—10.**

Nylon: Development and Prospects. Anon. *Economist*, 1951, February 10th, pp. 335-336. This article reviews the founding, development, and future prospects of the nylon industry in Britain. It points out that nylon production represents less than 1 per cent. of present textile yarn output, and is not likely to exceed 3 per cent. in the next four years. Reference is also made to Terylene, Orlon, and Perlon. **C—10.**

The Outlook for Cotton. Ringgold Arden. *Text. Industr.*, 1950, **114**, No. 12, pp. 128, 131. It is anticipated that the small crop of cotton produced in America during 1950 will result in a lowering of quality. Comment is made on the lowering of grades that has been caused by the greater quantities of trash in cotton picked mechanically. **C—10.**

Handling Costs: Reduction. Herbert L. Werner. *Text. World*, 1951, **101**, No. 2, pp. 136-143 (5 pages). The reduction of the cost of materials-handling by suitable positioning of machinery is discussed. Examples are taken from the main processess in the conversion of fibre to fabric, to show how this saving can be effected. **C—10.**

Textile Trade: 61st "Textile Mercury" Annual Review. *Text. Merc. Supplement*, 1951, March, 114 pages. This review consists of a number of articles summing up the present state of the British textile industry. **C—10.**

The Year's Textile Trade. Anon. *Text. Rec.*, 1951, **68**, February, pp. 82-88. A critical survey is made of the import and export trade of the United Kingdom in 1950 with particular reference to the cotton, rayon, and wool textile industries. **C—10.**

The Year's Trade. Anon. *Text. Rec.*, 1951, **68**, March, pp. 90-93. This second part of a survey of the textile trade of the United Kingdom during 1950 covers the imports and exports of the silk, linen, and jute textile industries. (For first part see /1737.) **C—10.**

Company-Designed Plan to Rate Maintenance Men. W. J. O'Keefe. *Machinist.*, 1951, **95**, No. 4, pp. 113-116. This article describes the replacing of a merit rating plan for maintenance craftsmen by a new plan of different design. The differences between the plans are explained, and reasons given why the new plan is working well where the old plan failed. **C—10.**

Comparison Within and Between Cotton Spinning Mills. Karl Blaschke. *Textil-Praxis*, 1950, **5**, No. 7, pp. 409-412. In German. Factors affecting production costs in spinning mills are considered in detail, and an assessment is made of the effect of the introduction of "economies" in the number of employees, and in production methods, on the ultimate cost, quality and reputation of the yarn. **C—10.**

Cotton Spinning in Japan. Anon. *Times Rev. Ind.*, 1951, March, p. 79. This article reviews the present position for Japanese spinners. Although the four million spindle limit has been removed, financial considerations will prevent the restoration of the pre-war figure of twelve million spindles in the near future. The author stresses the higher standard of wages, and the unsound financial standing of most mills compared with pre-war years. Tables are given showing equipment installed during 1947-1950, increase in spindleage, and looms, during 1950, and cotton yarn and cloth output figures for 1946-1950. **C—10.**

Increased Production in 1950. Anon. *Board of Trade J.*, 1951, **160**, No. 2827, pp. 420-421. A brief review of increased output in 1950 is given, and more detailed comparative output and employment figures for December, 1950. Tables are given showing yarn and cloth production figures and employment and machine-activity figures for the years 1945-1950, and the monthly figures for 1950. **C—10.**

Industrial Fibres: Trade Statistics. Commonwealth Economic Committee. *Industrial Fibres*, 1951, 149+xiv pp. This report discusses and summarises world figures of production, trade, and consumption (chiefly over the period 1938-1950) of industrial fibres, including cotton (28 pp.), silk (13 pp.), and rayon (19 pp.). **C—10.**

Labour Requirements in a Ring-Spinning Mill. Fr. Walz. *Textil-Praxis*, 1951, **6**, No. 2, pp. 91-92. In German. An attempt is made to determine the average number of employees required in the spinning of a yarn of given count. The investigation has been restricted to drafts ranging between 10 and 20 on the ring-spinning frame, and between 4 and 6 on the slubbing, intermediate and roving frames. A carding-machine operating at a rate of up to 11 lb. per hour is included in this comparative assessment. No employees other than those directly concerned with the production of the spun yarn (that is, excluding winders, *etc.*), are included. **C—10.**

The Merchant Converter. Eric Bland. *Text. Wkly*, 1951, **47**, No. 1201, pp. 800, 802, 804, 806. This is a report of a lecture on the functions of the merchant converter in the textile trade. **C—10.**

Mill Supervision. *Papers Second Canad. Text. Seminar*, 1950, pp. 1-29. The papers presented in this section of the second Canadian Textile Seminar deal with (1) manufacturing controls for textile mills, (2) time study and the foreman, (3) preparation of department cost reports, and (4) mill supervision as it affects the employee. **C—10.**

Modern Production Methods. Anon. *Text. Indust.*, 1951, **115**, No. 2, pp. 105-177. This a compilation of eighty case history reports, primarily on equipment performance, showing how American textile mills save labour, reduce waste, simplify jobs, improve quality, and increase production. The subjects dealt with cover a wide field of processes. **C—10.**

Silk Industry in Lyons: A History. G. Gilonne. *Bull. Soies Soierie*, 1950, **74**, No. 3552, pp. 6-8; No. 3553, pp. 9-11; No. 3554, pp. 9, 11; 1951, **75**, No. 3555, pp. 9, 11, 13; No. 3556, pp. 4-5; No. 3557, pp. 4-6; No. 3558, pp. 11, 13, 15; No. 3559, pp. 9, 11; No. 3560, pp. 9, 11. In French. **C—10.**

Textile Industry in Japan: Prospects for 1951. Toyo Spinning Company Limited. *Toyo Spinning Co. Inst. Econ. Res. Mthly Circular*, 1951, No. 14, January, pp. (1)-(2) (in English). Estimates are given for raw cotton required, number of spindles, domestic consumption, and imports. Figures for 1949 and 1950 show production of rayon yarns and staple fibres. The article discusses the general situation in the cotton, rayon and wool industries. Graphs are included comparing the consumption of various textiles in Japan with consumption in the United States, from 1926 to 1949, and there is a table of price indices. C—10.

Textile Statistics for Japan, 1950. Toyo Spinning Company Limited. *Toyo Spinning Co. Inst. Econ. Res. Mthly Circular*, 1950, No. 13, December, pp. 16-20 (in English). Tables give the annual figures for 1945-1949, and monthly figures for the second half of 1948, all 1949, and the first seven months of 1950. These figures show yarn and cloth production, the number of workers employed, and the machines available. C—10.

Wages and Production. J. M. Yerkess. *Text. Whly*, 1951, 47, No. 1201, pp. 794, 796, 798. This is a report of a lecture on wages in relation to standards of production in the textile industry. C—10.

Puerto Rico Textile Story. C. W. Bendigo. *Text. World*, 1951, 101, No. 3, pp. 103-118. An illustrated account is given of the newly established textile industry in Peurto Rico. C—10.,

11—INDUSTRIAL WELFARE, INDUSTRIAL PSYCHOLOGY AND EDUCATION

International Labour Organisation: Textile Progress Report. Anon. *Gen. Rep. Text Committee I.L.O.*, 1950, November, 165 pages. The reports given form the first part of the agenda of the international textile conference organised by the I.L.O. at Lyons in November, 1950. They deal with workers' welfare, covering safety, training, recruitment and occupational diseases; trends in production, trade, wages and employment; and technical problems and developments. There are thirty-two tables in the text, including figures of world supply, distribution and consumption of cotton; employment and exports figures for several countries; output in the U.S.A., and E.R.P. plans. Statistical tables in the appendix give machinery, production and in some cases manpower figures for seventeen countries, as well as cotton, wool and rayon textiles available per person in various countries, and in the world as a whole, for 1938 and 1948. (See *J. Textile Institute*, 1951, 42, A138.) C—11.

Mechanical Engineers in the Process Industries. W. F. Carey, *Engineer*, 1951, 191, No. 4963, pp. 324-326. An abstract is given of a paper presented at a meeting of the Institution of Mechanical Engineers in which the author discussed the problem of introducing mechanical engineers into industries of which they had little basic knowledge (*e.g.* the chemical industry). A discussion of the paper is reported in detail. C—11.

Safety. V. R. Croswell. *Ind. Engng Chem.*, 1951, 43, No. 1, pp. 87A-88A. Summaries are given of three papers on ways and means of inspecting chemical equipment for safety. C—11.

The Bell Telephone Laboratories—an Example of an Institute of Creative Technology. Mervin J. Kelly. *Proc. Roy. Soc.*, **A**, 1950, 203, No. 1074, pp. 287-301. An illustrated account is given of the history, organisation, work, and layout of the Bell Telephone Laboratories in New York. These laboratories, which serve the Bell telephone system, employ about 5,700 scientists, engineers, and supporting staff. C—11.

Education for Industry. Claude Gibb. *Engineer*, 1951, 191, No. 4964, p. 356. The problem of producing an adequate supply of highly trained technical personnel for British industry is discussed. C—11.

Apprenticeship in Canada. Gabriel Rousseau. *Machinist*, 1951, 95, No. 11, pp. 392-394. The apprenticeship system used in Canada is described. C—11.

Advances in the Theory and Practice of Incentives. C. A. Mace. *Occup. Psychol.*, 1950, 24, No. 4, pp. 239-244. The article makes the point that no sense of responsibility can be felt by workers for results over which they have no

effective control. It is suggested that the three essential conditions for the success of an incentive scheme are an intelligible target, the possibility of assessing progress, and the ability of the worker to control the desired effect. The author discusses three recent publications: Mr. Frank Russon's "Bonusing for Builders", Mr. R. P. Lynton's "Incentives and Management in British Industry", and a description in *Target*, 1950, III, 4, of the Scanlon Plan. C—11.

Government Aid for the Social Sciences. Anon. *Planning*, 1951, 17, No. 323, pp. 137-155. In this review PEP consider the work at present being done in social science research, by the Research Councils, Government Departments, bodies concerned with research into the human factor in industry, and the North Committee. The establishment of a proposed British Sociological Association is welcomed, but it is suggested that Government aid for social science research might be facilitated if the professional standards of social scientists were raised. C—11.

12—CONFERENCES AND EXHIBITIONS

British Institute of Management Conference. Anon. *Manager*, 1950, 18, December, pp. 582-585, 587-589 and 595, 592-595, 597-602. A fairly full account is given of addresses by Sir William Coates, Deputy Chairman of the Westminster Bank, on "Economic Background to Management"; by Mr. R. A. Butler, M.P., a director of Courtaulds, on "Managers of the Future"; and by Sir Robert Sinclair, President of the Federation of British Industries, on "Industry and Management". A briefer account is given of discussions coming under the four groups: how to produce the right things, how best to use our material and human resources, how to sell our goods, and technique of management. The conference was held at Harrogate in November, 1950. C—12.

Cotton Problems. Anon. *Text. World*, 1951, 101, No. 1, pp. 118-119. Some of the problems concerned with the production and marketing of raw cotton, which were discussed at the Seventh Cotton Spinner-Breeder Conference, at El Paso, Texas, are briefly considered. C—12.

Summarised Proceedings of a Conference on High-intensity X-Ray Beams—London, April, 1950. A. E. De Barr and I. MacArthur. *Brit. J. Appl. Phys.*, 1950, 1, No. 12, pp. 305-318. An account is given of the proceedings of a conference on "The Production and Application of High-intensity X-Ray Beams" held in London, by the Institute of Physics, on April 13-14, 1950. The papers and discussions are summarised, and a bibliography of over 80 references is included. C—12.

Summarised Proceedings of a Conference on the Physics of Lubrication.—Manchester, 1950. R. Schnurmann. *Brit. J. Appl. Phys.*, 1950, 1, No. 11, pp. 275-285. A summarised report is given of the proceedings of a conference on the physics of lubrication, held in Manchester on June 29 to July 1, 1950. The papers and discussions outlined in this report are to be published in full at a later date. C—12.

Textile Machines at the Utrecht Exhibition. Anon. *Text. J. Australia*, 1950, 25, No. 9, pp. 882-883. Brief descriptions are given of two new looms and a hank winder exhibited at the Netherlands Industries Fair (September, 1950). C—12.

The British Industries Fair. Anon. *Text. Merc.*, 1951, 124, No. 3229, pp. 313-314. A brief preview is given of some of the textile products to be shown at the forthcoming British Industries Fair. C—12.

T.R.I. Holds 21st Annual Meeting. H. R. Mauersberger. *Rayon Synth. Text.*, 1950, 31, No. 12, p. 51. A brief account is given of the annual meeting of the Textile Research Institute, Inc., in New York in November, 1950. C—12.

Papers of the Second Canadian Textile Seminar. The Textile Technical Federation of Canada. Publ. 1950, 201 pages. This is a collection of the papers presented at the Second Canadian Textile Seminar held on September 15-16, 1950. The subject divisions are as follows (1) mill supervision, (2) worsted manufacture, (3) woollen manufacture, (4) manufacture of textiles from man-made fibres, (5) cotton manufacturing, (6) knitting, (7) dyeing, printing, and finishing of cotton and man-made fibres, (8) woollen dyeing and finishing, and (9) mill engineering. Individual papers are referred to in the following Abstracts—*J. Textile Institute*, 1951, 42, A288,A294, A298, A308,A330. C—12.